A

TREATISE

ON THE

DISEASES OF THE JOINTS;

BEING THE OBSERVATIONS FOR WHICH THE PRIZE FOR 1806 WAS ADJUDGED BY THE ROYAL COLLEGE OF SURGEONS IN LONDON.

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INTRODUCTION.

TO enter into a minute account of all the particulars now known, relative to the numerous morbid affections of the joints, would form a tedious compilation of circumstances, too well known to need repetition, and too numerous to be comprehended in the ordinary limits of a dissertation. An unprofitable transcript of what almost every system of surgery contains would also form a large proportion of such an undertaking.

I shall suppose that the experienced men to whom I address myself, will readily dispense with my reviving the consideration of many antiquated opinions, merely for the sake of reducing them by argument to the same obsolete state in which they were previously found.

I am confident that these gentlemen will not expect me to dwell on many modern proposals, which are branded with such palpable absurdity that they will for ever be ex-

pelled from the field of practice, where alone they might interest mankind and become of real importance.

The plan which I have pursued in the following pages, is to offer, in the first place, a cursory and general sketch of several principal diseases of the joints, and the outlines of the treatment adapted to them. Secondly; I have entered into a particular consideration of the white swelling of the knee, and the treatment of the disease. Lastly; I have made the morbid affection usually denominated the *disease of the hip joint*, the subject of my reflections.

In performing this task my ambition has been to communicate in a simple style, useful practical information. I have made no intentional effort to dazzle the judgment of my readers by an ostentatious list of authors in the margin, or by quotations from old works, which are now almost as dead as the men who wrote them. The books which I have quoted in the course of this production, are cited only to illustrate important facts, or to expose erroneous doctrines.

A TREATISE.

PART I.

A CURSORY AND GENERAL SKETCH OF SEVERAL PRINCIPAL DISEASES OF THE JOINTS, AND THE OUTLINES OF THE TREATMENT ADAPTED TO THEM.

CHAP. I.

Preliminary Remarks relative to the Pathology of the Joints.

IF we recal to our recollection the anatomical structure of the joints, we shall find that the heads of the bones, which are concerned in the formation of these parts, are of a spongy texture, and connected together by strong ligaments, while their articular surfaces are covered with a beautifully polished, elastic substance, called cartilage. The

smoothness and elasticity of the cartilages are qualities rendering them peculiarly proper for gliding with ease over one another in the motion of the joints, and for breaking the force of such shocks as the limbs have to sustain in jumping, running, and other ordinary exercises of life. In order that the articular surfaces of the bones may move with still greater ease upon each other, we find that their cartilaginous coverings are constantly lubricated with an albuminous secretion, termed the synovia.

It was a valuable observation, made by the late Mr. Hunter, and one upon which he laid much stress, that the characters of local diseases differed very materially, according to the situation, structure, and functions of the morbid part. When diseases are situated in parts which enjoy a vigorous circulation of blood through them, they assume a very different aspect from what they would do, were they in a situation, in which the circulation is naturally languid, or in which there are only (comparatively speaking) few vessels,

and those of very small diameter. When the part affected is, what anatomists term, highly organized, and vascular, the disorder is generally more mild and tractable than i the part were only furnished with such small vessels, that it could not be rendered red by anatomical injections.

But, besides great vascularity and high organization of structure, a situation near the source of the circulation seems oftentimes to render parts less disposed to become diseased, and not only better able to resist the attack of morbid affections, but also more prone to return, when so attacked, to a state of health. However, if the functions of the parts affected be intimately essential to the continuance of life, then, as Mr Hunter observes, the natural operations of universal health depend so much upon their sound condition, that the local disease has not the same tendency to end well, as if it were situated in a part of similar structure, but of different functions.

When we apply these remarks to the

joints, we may in some measure account for the frequency, obstinacy, and peril of their diseases; at least we may discover general principles, to which such circumstances may rationally be referred.

The cartilages and ligaments, the bones themselves, are parts endued with an inferior degree of vascularity, and the quantity of blood with which they are furnished is, when compared with that of most other parts, exceedingly inconsiderable. This is, perhaps, one principal cause that the joints in general are so backward in recovering from the effects of accidental injuries, and so slow in freeing themselves from a state of disease.

It is well known that diseases of the upper extremity are generally more tractable than those of the lower. Every part of the arm may be considered as being nearer to the source of the circulation than the whole of the lower extremity. This circumstance may, perhaps, explain why diseases situated in the arm are much more under the control of surgery than when they affect the leg. How much

more seldom scrophulous elbow-joints require amputation, how much more frequently they are cured, than similar affections of the knee! We may also deduce another reason for this fact from a comparative consideration of the functions of these two articulations. When a patient has a complaint in the elbow or wrist, he places his arm in a sling, walks about, visits his friends, and takes his usual exercise; his general health is neither impaired by confinement, nor by that dejection of spirits which so frequently attends the long privation of locomotion, and the apprehension of losing this enjoyment for ever.

The structure of the knee-joint is more complicated than that of any other articulation in the body. Besides the capsular and lateral ligaments, which it has in common with the majority of other joints, it is also furnished with particular ligaments, named the crucial ones, and with interarticular semilunar cartilages. The complication of its structure may also seem to the contemplative pathologist a reason why its diseases should not only be more frequent, but, at the same time, more obsti-

nate, and difficult of cure, than those of other joints. The articular surfaces of the knee, and the cavity of its capsular ligament, are also much larger than those of any other articulation.

The hip-joint is greatly protected, by its deep situation, from blows and other species of external violence; from the bad effects of sudden vicissitudes of temperature; and from the operation of outward damp. These circumstances, which, undoubtedly, are very frequently the primary exciting causes of the worst diseases of the joints, must affect the knee with peculiar force, on account of it sexposed situation, and the vicinity of its cavity to the surface of the body. Hence it seems a matter of no surprise that the hip-joint should be much less frequently diseased than the latter articulation.

No large joint in the human body is so little strengthened and supported by the conformation of the bones, as the knee; no other important joint derives its strength so entirely from ligaments. The ankle receives lateral support from the two malleoli. In the hip the

head of the os femoris is almost enclosed in a complete bony socket. In the elbow the deep sigmoid cavity of the ulna, formed between the coronoid and olecranon processes, affords a very stable lodgment to the internal portion of the articular surface of the os brachii, so that the latter is almost securely fixed in its situation without the assistance of ligaments. The groove also, which is formed on the lower end of the os brachii, and receives a portion of the ulna, contributes very materially to the stability of the articulation. From the preceding observations it becomes obvious that the ligaments of the knee must be particularly exposed to sprains, which are too frequently the forerunners of the most serious morbid mischief to which the joint is liable. We have every reason to believe that the ligaments are the structure in which most of the worst diseases of this articulation first originate.

The strength of the wrist, however, seems to depend chiefly on ligaments; and, as this joint is also much exposed to the effects of external violence, and is more remote than

the elbow from the source of the circulation, we cannot wonder that it should be more prone to disease than the latter. But, its not being morbidly affected so often as the ankle must be imputed to situation. Both the ankle and the wrist, however, are very frequently affected with such serious maladies as waste the vigour of the constitution, and even render amputation indispensable. In these cases the disease often commences in the tarsus and carpus, and subsequently involves the ankle and wrist in its ravages.

The great quantity of cartilaginous and ligamentous structure surrounding the bones of the tarsus and carpus, and the spongy texture of the bones themselves, are sufficient reasons, without enumerating others, to account for the frequency of disease in these situations. The morbid affections of the carpus are, in general, much more tractable than those of the tarsus. The reason of this fact may very rationally be referred to principles which have been already noticed.

When we recollect that the diseases, which form the chief objects of investigation in the

subsequent pages, are of a scrophulous nature, we cannot be surprised that, situated as they are in a structure peculiarly unfavourable to the amendment of disease in general, they should so frequently baffle all the power of the surgical art.

When diseases affect parts which seem to possess, like the joints, very inferior powers of recovery, the effects of the local disorder on the constitution are proportionally more severe. Hence the mere inflammation of a large joint is often attended with so high a degree of inflammatory fever, and such disorder of the nervous system, that the preservation of life itself is at stake. Hence also diseases of the joints sooner induce hectic symptoms than when there is an equal quantity of disease in almost any other part.

Having premised these general pathological observations I next proceed to delineate the outlines of several principal diseases to which the joints are subject. All accidental injuries, such as fractures, luxations, &c. and all subjects not strictly surgical, such as gout, rheumatism, &c. are purposely omitted.

CHAP. II.

Inflammation of Joints.

IDIOPATHIC cases of this kind are not common. The complaint ordinarily originates in consequence of a contusion, sprain, wound, or some other kind of injury, done to the part affected.

Phlegmonous inflammation, wheresoever situated, is uniformly attended with certain local symptoms, by which both its presence and degree may be ascertained. Preternatural redness, increased heat, a throbbing pain, and a tense swelling, affecting the seat of its attack, are the common marks which denote its existence in all situations. When a joint is inflamed the same local phenomena are present, and the constitution is disturbed by the usual symptoms of inflammatory fever; but, in these cases, they are apt to be exceedingly severe. The inflammation attacks the capsular ligaments, and, not remaining confined to any particular portion of them, it very

quickly diffuses itself universally over their whole extent, as is commonly the case in all inflammations of smooth membranes. That there is this peculiarity in inflammation of membranes, is often strikingly proved in the instance of peritonitis, arising after the operation of lithotomy. Here we know that the inflammation commences in the bladder, is communicated to the portion of the peritoneum, which covers the fundus and posterior surface of this viscus, and thence rapidly spreads over the whole extent of the abdomen.

The capsules of the joints are naturally endued with little sensibility; but, like many other parts similarly circumstanced, they become acutely painful when inflamed. The complaint is accompanied by an increased secretion of the synovia, which becomes of a more aqueous, and of a less albuminous quality, than it is in the healthy state. Hence this fluid is not so well calculated for lubricating the articular surfaces, and preventing the effects of friction, as it is in the natural condition of the joint. This circumstance

may explain why a grating sensation is often perceived on moving the patella, when the knee is inflamed. The increased quantity of synovia, in cases of inflamed joints, has often appeared to me an argument against the existence of a spasmodic constriction of the minute vessels in inflammation.

The capsules of the joints may, like other membranes, be thickened by inflammation. At other times an exudation of coagulating lymph, or an effusion of a gelatinous fluid, may take place upon their internal surfaces. According to a general law of the animal economy the contiguous vessels always have a tendency to shoot into coagulating lymph, when thus extravasated, and the result is, that organized substances, such as cartilaginous and osseous bodies, &c. are formed in the interior of the joint.

If the inflammation be more vehement, suppuration may happen within the capsular ligament. Indeed this is by no means an unfrequent occurrence. At length the capsular ligament ulcerates, and purulent matter is effused beneath the integuments. The skin

may next ulcerate, so that the abscess is discharged, and the case seems to be somewhat benefited. The openings through which such collections of matter are discharged, will be found, upon examination with a probe, to be the terminations of sinuses leading into the cavity of the joint.

A large joint seldom falls into a state of suppuration in consequence of acute inflammation, without the constitution being, at the same time, so disturbed that life itself is greatly endangered. In the most vehement state of the inflammation, or that which is the immediate forerunner of suppuration, the pulse is exceedingly frequent; but not quite so full and strong as it would be, if the part affected were of a structure better adapted to resist the ravages of disease. The patient's skin is dry and hot; he is restless and vigilant; and, I have known persons, under these circumstances, become affected with delirium and coma, and ultimately perish.

But the rapidity with which the common inflammatory fever assumes, in such cases, the hectic type, is a circumstance which it

would be inexcusable to pass over in silence. When suppuration has occurred in a large joint, in consequence of a severe attack of common inflammation, the patient immediately begins to be affected with hectic symptoms, and the strong action, attendant on the inflammatory fever, suddenly ceases.

Local consequences, even worse than those which I have described, may follow inflammation of a joint. As the layer of the capsular ligament, reflected over the cartilages of the articulation, is often inflamed, the cartilages themselves are very apt to have the inflammation communicated to them. Parts partaking of a cartilaginous structure, being very incapable of bearing the irritation of disease, often ulcerate, or, in other words, are absorbed, so as to leave a portion, or the whole, of the articular surface of the bones, completely denuded of its natural covering. At length the heads of the bones, entering into the formation of the affected joint, inflame and become carious.

Sometimes only such parts as are exterior to the cavity of the joint are inflamed, and, in

this case, the symptoms are never so severe,* nor so obstinate, as when the complaint interests the capsular ligament, and parts contained in it. Even when suppuration takes place on the outside of the capsule, the case is not dangerous, provided the cavity of the joint be not involved in the inflammatory attack. Every inflammation of a large joint may, upon the whole, be deemed a case of considerable importance. I do not mean to assert that cases, in which the inflammation is mild in degree, and simple in its nature, are dangerous : no ; I only wish to inculcate that, though the inflammation be originally genuine, yet it is always very likely to be converted into one of a specific nature, whenever there is a tendency in the system to scrophulous disorder. A person, whose constitution is scrophulous, may sometimes continue, during life, exempt from any local diseases of this specific nature, provided he be fortunate enough to avoid all irritation of parts on which scrophula is most particularly disposed to make its attack. A-

* Treatise on the Morbid Affections of the Knee Joint, by James Russell, p. 60.

mong such parts we must class the joints, especially the knee, hip, elbow, and ankle. Hence, when a joint is inflamed, however mild the affection may be, we ought never to forget that, when there is a tendency to scrophula in the system, the original case of simple inflammation is very apt to be the exciting cause of the white swelling, one of the most severe and intractable diseases which increase the catalogue of human miseries.

After what has been said it must be obvious that, whatever may be the curative means indicated, they ought to be most rigorously adopted, not merely on account of an abstract view of the present state of the case, but also on account of the opportunity which is now afforded for a terrible disease to arise, which often remains previously in a dormant state.

CHAP. III.

Treatment of inflamed Joints; and two Cases illustrative of the Subject.

IT will considerably shorten this part of my observations to state, that the antiphlogistic plan of treatment, in the full sense of the expression, is to be strictly adopted. But, as there is a variety of means, often adapted to the same purpose, it seems necessary to offer a few remarks on those which lay the greatest claim to our commendations. Also, as the treatment of inflammation of the knee will illustrate that of all other large joints, I shall select this case as an example.

From what I have seen of this affection I have no hesitation in asserting that there are few other surgical cases, in which general, and, especially, topical bleeding, is more strongly indicated. The violence of the inflammation, and the strength, age, and pulse of the patient, must determine with regard to the use of the lancet; but the topical application of leeches may be said to be invariably prop-

per. When the leeches fall off, the bleeding is to be promoted by fomenting the part. The surgeon should daily persist in this practice, until the acute stage of the inflammation has entirely subsided. But, in conjunction with this treatment, we are to keep the joint continually surrounded with linen wet with the saturnine lotion. In no case of local inflammation are the application of cold lotions, and the maintenance of a constant evaporation from the surface of the part affected, more strikingly advantageous.

In a few instances, however, the patient seems to derive more ease and benefit from the employment of fomentations and emollient poultices. I would always recommend the feelings of the patient to be consulted; for, if the pain be materially alleviated by this, or that application, the employment of it will hardly ever be wrong.

I shall say nothing more concerning the rest of the treatment proper during the vehemence of inflammation, as the duty of the surgeon is not materially different from what it is in other inflammatory cases.

When the acute stage of the inflammation has abated, the plan of treatment may be a little altered. The grand object now is to remove the effects, which have been left by the preceding affection. These are a thickened state of the capsular ligament, and parts surrounding the articulation ; a stiffness of the joint, and pain when it is moved ; a collection of fluid in the capsule, &c. This state of the complaint, when neglected, and there is a tendency to scrophula, may prove exceedingly obstinate, and even terminate in an irremediable, specific distemper of the joint. Common inflammation of an articulation, like the same affection of the eye, is peculiarly apt to end in a chronic species of the affection, even more difficult of cure than the acute stage of the complaint. When, therefore, the redness, tension, throbbing, and symptoms of inflammatory fever subside, the activity of the practitioner ought not to be relaxed. The application of a blister is what I have found particularly efficacious in the second stage of the inflammation, and a discharge

should be kept up from the blistered surface, for a few days, by means of the savin cerate.

I have often seen exceedingly large collections of fluid in the capsular ligament, the thickening about the joint, and other remaining effects of the inflammation, totally dispersed, under such treatment, in the short space of ten days from the period when the blister was first applied.

In other cases, in which the inflammation has been more trivial, and the effects which it has left are slight, lotions, composed of vinegar and sal ammoniac, suffice for the removal of the chronic complaints, continuing after the abatement of the acute stage of the disorder. My own experience enables me to confirm the reputation which such applications have most justly acquired.

To illustrate the present subject I shall select the two following cases from several others, which have fallen under my own observation.

CASE I.

A young man, about twenty-three years of age, fell from the top of a coach, August 20th,

1799, and bruised his knee against the back part of the carriage. As soon as I was called to the patient I applied the saturnine lotion to his injured knee, and gave him some purgative medicine, consisting of the infusum sennæ, and natron vitriolatum. Notwithstanding these measures I found the joint, on the following day, very considerably swollen; the pain in the part very acute; and all motion of the articulation utterly insupportable. The patient's pulse was accelerated, and his skin dry. Ten leeches were put on the joint, and full ten ounces of blood were taken from the arm. As the severity of the pain was much complained of in the evening, a grain of opium was administered.

August 22. The patient had slept but indifferently, and a good deal of pain was still experienced in the injured part. As the redness, swelling, and tension were considerable, I ordered eight more leeches to be applied, and the purgative draught to be repeated. At night the patient took twenty drops of the tinctura opii.

August 23. The man had enjoyed some

refreshing sleep. This morning his pulse was eighty, and the redness, swelling, tension, and heat about the joint, were somewhat diminished.

August 30. All the acute symptoms were now removed. The treatment since the last date merely consisted in applying continually the saturnine lotion. However, the patient still complained of a degree of pain in the articulation, and there was obviously a preternatural quantity of fluid in the capsular ligament. Though the tumefaction of the integuments had subsided, yet this accumulation of fluid, and some thickening of the capsule, caused the joint to seem still somewhat enlarged. I now applied a blister immediately over the patella and front of the joint.

August 31. The blister had raised the cuticle in the most desirable manner. The patient found infinite relief, and said that the part was less painful than it had been ever since the first occurrence of the accident. The cuticle was removed, and the blistered surface was dressed with the ceratum sabinæ.

September 3. The blister discharged co-

piously, and the pain and swelling of the joint were daily diminishing.

September 17. The blister was healed, and the knee was not larger than the other.

REMARKS.

This case places in a very strong light the utility of employing active measures for the removal of such effects as frequently remain after the acute stage of the inflammation has subsided. Had nothing been done to reduce the thickened state of the capsular ligament, and to disperse the fluid in the cavity of the joint; had the patient imprudently attempted to walk about, instead of remaining quietly in his bed; I really believe, from the degree of pain which he continually experienced in the articulation until the blister was applied, that the affection might have been converted into a very serious disease. Had the patient been of a scrophulous habit the hazard would have been still greater.

CASE II.

The following case is mentioned to show how violent the constitutional symptoms some-

times are, when the knee joint is vehemently inflamed in consequence of a wound.

In June 1800, a lad, about sixteen years of age, accidentally wounded his knee with a penknife, in attempting to stop the instrument as it was falling. The point had penetrated the capsular ligament on the inside of the right knee. The wound of the skin was not more than half an inch in length, and was closed very accurately with sticking plaster soon after the accident. The lotio aq. litharg. acet. was applied round the injured joint. The day after the accident the joint was prodigiously swollen, and the patient in a very feverish state. Notwithstanding general and local bleeding was extensively and repeatedly practised, while other evacuations were not neglected, the tumefaction of the part continued to increase, and a most violent symptomatic fever supervened. In short, the lad became delirious on the fifth day, and died on the seventh. When the first dressings were removed on the fourth day, the wound, however, had shown a disposition to unite in a favourable manner.

REMARKS.

I believe the severity of the constitutional symptoms is always greater, when the inflammation of a joint arises from a wound, than when it is the consequence of a contusion or sprain. In considering the next subject we shall see, however, that wounds may frequently be made into the large joint of the knee, without being followed by any material inflammation. But, when inflammation of a joint does arise from a wound, my experience leads me to suspect that the constitution is always more disturbed than when the complaint occurs without a breach of continuity in the capsular ligament.

CHAP. IV.

Preternatural cartilaginous Substances in the Joints.

THE ancients have either neglected to notice this disease in their writings, or they have not been at all acquainted with it. Ambrose Paré* is the first author who mentions it. He had made an incision in order to evacuate some fluid from the cavity of the knee joint, when a hard, polished, white body, about as large as an almond, was discharged from the wound. Since the time of this illustrious practitioner many eminent men have called our attention to the particulars of the complaint. Of these Reimarus,† Morgagni,‡ Bromfield,§ Ford,‖

* Livre xxv. Chapitre 15.

† Diss. de tumore ligamentorum circa articulos. 1757.

‡ De sed. et caus. morb.

§ Chirurgical Cases and Observations. Appendix to vol. i.

‖ Med. Observ. and Inquiries. Vol. v.

Desault,* Home,† Hey,‡ and Abernethy,§ form only a small number; but as it is in their writings that we find the most interesting information on the subject, I deem it superfluous to enumerate other authors.

The external part of the extraneous substances in question is commonly of a cartilaginous consistence, while their central part is frequently osseous. Their figure is subject to great variety; but they usually have one concave side, and another which is convex. They are, for the most part, formed in the knee-joint, and have been supposed by Reimarus and some other writers to be met with in no other articulation. Morgagni, however, has seen ossified bodies of this kind in the articulation of the leg. Haller also discovered a great number of cartilaginous bodies in the articulation of the jaw, where the natural cartilages of the joint had been destroyed. Mr. Hey mentions a case in which there were two

* Journ. de Chirurgie. Tom. ii.

† Med and Chirurg. Transactions. Vol. i.

‡ Practical Observations in Surgery.

§ Surgical Observations. 1804.

bodies of this description in the elbow-joint. The largest that I have ever heard of is mentioned by Mr. Home, as being nearly as large as the patella, and situated in the knee-joint of a soldier belonging to the fifty-sixth regiment. The greatest number ever known to be contained in one articulation is twenty-five. In most instances we only find one.

Such preternatural substances are either attached to some part of the inside of the joint, or are quite unconnected and loose. It is only when they become so situated as to interpose themselves between articular surfaces, which glide over one another in the motion of the joint, that much inconvenience commonly results from their presence. While they continue by the side of the patella they cause little trouble; but when they slip under the ligament of that bone, or between the same bone and the condyles of the femur, or between the latter bone and the head of the tibia, then they impede progression, cause considerable pain, and often excite inflammation.

As cartilaginous substances in the joints are, very often, quite unconnected with any living

surface,and are moveable from one side of the articulation to the other, their formation has been regarded with some degree of curiosity. A modern author, to whom we are indebted for many excellent remarks on the diseases of the knee, has very absurdly imputed the origin of a soft description of these preternatural substances to an inspissation of the synovia. "The portion which is inspissated may act as a nucleus to attract more of the surrounding matter, and may thus receive perpetual augmentation of bulk to an unlimited extent." I wish that I could as readily understand, as the author conceives his reader cannot fail to do, how this class of tumours thus increases in size. He acknowledges that it is not an easy matter to comprehend "by what process those of a bony, or cartilaginous nature, which have separated from their attachment, can become larger, though this is asserted upon very credible authority!!"*

* Russell on Morbid Affections of the Knee Joint, p. 88, 89.

When we peruse the accurate account which Mr. Russell has given of the present disease, we cannot fail to be surprised that he should not have perceived how easily a surgeon may imagine a tumour to be quite detached, while it still has connexion with the inside of the joint, by means of a long slender pedicle, which allows the extraneous substance a considerable latitude of motion. When we remind ourselves of the true manner in which such preternatural cartilages grow, we shall at once see how they may continue to enlarge as long as they are attached to an adjacent living substance, and how they cannot possibly increase after this connexion has been destroyed.

Considerable light was thrown upon the formation of loose cartilaginous tumours in the joints by the penetrating genius of the late Mr. Hunter, and the surgical profession is much obliged to Mr. Home for a paper in which he has given an able account of Mr. Hunter's ideas. It is almost too well known to need recital, that the latter immortal practitioner entertained an opinion that a coagu-

lum of extravasated blood might frequently be converted into an organized vascular substance by the vessels growing into it from the neighbouring living surface. No one doubts that the coagulating lymph has constantly a tendency to become vascular, when effused on the surface of an inflamed membrane. I do not think it of importance to investigate here whether a clot of red blood can be converted into an organized substance or not. It is quite sufficient for the explanation of the present subject to know, that effused coagulating lymph is capable of this change, and that, in many instances, it then assumes a resemblance in structure to the contiguous parts.

If we take the trouble of perusing the cases which are related by different authors, we shall find that the formation of loose cartilaginous substances in the joints has generally been preceded by violence done to the part, and by symptoms of inflammation. Of this sort are the cases related by Mr. Ford, M. Brochier (in Desault's Journ.), Mr. Abernethy, and Mr. Hey. Latta mentions four instances which were preceded by rheumatism.

In this state I conceive that the capsular ligament, or its delicate layer reflected over the articular cartilages, effuses coagulating lymph, just in the same way as we know that the peritoneum and peritoneal coverings of the viscera do, in consequence of inflammation in the cavity of the abdomen. Vessels very soon shoot from the adjoining living surface into a portion of the extravasated lymph, which gradually becomes converted into a structure more or less similar to that of the nearest parts.

Mr. Russell doubts the probability of this mode of formation, because similar cartilaginous and osseous bodies have been found in the cavities of the bursæ mucosæ, in which situation, "had similarity of substance been a necessary "consequence of their attachment, these bod-"ies would not have been composed either of "bone or cartilage." (P. 85.) Mr. Abernethy has written some very valuable observations on the formation of tumours, and I shall take the liberty of quoting a passage from his work, as it tends to illustrate the present disquisition. "The structure of a tumour is sometimes like that of the parts near which it grows.

Those which are pendulous in the joints are of a cartilaginous or osseous fabrick; fatty tumours frequently form in the midst of adipose substances, and I have seen some tumours growing from the palate, and having a slender attachment, which, in structure, resembled the palate. Sometimes, however, they do not resemble in structure the parts from which they grow. The instance, just mentioned, of the pendulous portion of fat growing from the peritoneum, will serve as an instance. The vessels which had shot into it made the tumour into fat, whilst the neck was of a fibrous and vascular structure. I have seen osseous tumours unconnected with bone, or periosteum; and indeed, in general, the structure of a tumour is unlike that of the part in which it is produced. Therefore we seem warranted in concluding that, in many cases, the nature of the tumour depends on its own action and organization, and that, like the embryo, it merely receives nourishment from the surrounding parts."*

* Surgical Observations, containing a Classification of Tumours, &c. 1804.

I have in my own possession a completely cartilaginous tumour, which I found enveloped in the fat which surrounds the kidneys. Hence it is obvious that the coagulable part of the blood, when effused, is very prone to be converted into a living substance, and that its structure does not necessarily resemble that of the contiguous parts. If Mr. Russell should doubt the truth of the above explanation of the manner in which loose cartilaginous substances form in the joints, he has equal reason to doubt that all other tumours originate in the way which is commonly supposed. In many instances we could not possibly impute their origin to any such cause as an inspissation of the synovia; and, if we were to imbibe the idea for a moment, we should reject it the next, on reflecting that mere inspissations could not be endued with vascularity, which many tumours demonstrably possess.

The foregoing statement seems more likely to be true, when we consider that loose cartilages are usually connected with some part of the articular cavity, which does not suffer attrition when the joint is moved. Dr.

Alexander Monro, in dissecting the knee of a malefactor, found an osseous tumour, which was connected, by a ligamentous pedicle, with the exterior edge of the cartilage, covering the external cavity of the tibia. (Edinb. Essays, vol. iv. p. 245.) We find that perfect quietude is essential to the growth of new vessels into coagulating lymph; and, in the case just instanced, if the exudation had taken place in such a situation in the joint, that it would soon have been disturbed in the motion of the limb, its organization would not have taken place. Also, if such cartilaginous bodies were to be usually formed on a part of the articular cavity, necessarily exposed to friction in walking, &c. then patients would experience pain from the first. But, as they do not feel inconvenience till the tumour has become very moveable by the gradual elongation, or sudden rupture of its pedicle, and, only then, when the tumour glides into a situation where it becomes pinched between the articular surfaces, we have a right to conclude that almost all cartilaginous bodies of this kind grow originally in a situation where they

are not particularly exposed to disturbance in the motion of the articulation. In most instances the communication of vascularity must also take place during the tenderness of the joint, at which period the patient naturally keeps his limb in a quiet state, in order to avoid pain. After all inflammation has subsided the limb is again moved with freedom; the organized coagulum becomes gradually loosened by the motion, and, at length, it only remains connected with the point to which it was originally attached, by means of a long slender pedicle, through which its nutrient vessels proceed. At last the pedicle breaks, and the cartilaginous substance is left quite loose, like an extraneous body, in the cavity of the joint. It is easy to conceive how it is likely, in this state, to glide into situations where it must obstruct the functions of the articulation, and cause considerable pain, and even other symptoms of inflammation.

The irritation of loose cartilages in the knee often occasions an increased quantity of fluid in the capsular ligament; but this is not invariably the case. When the irritation

is such as to induce a degree of heat and tenderness in the joint, there is usually a preternatural quantity of synovia : when the loose cartilages have not lately created pain and inconvenience, the synovia is commonly not more abundant than it is in the natural state of the articulation.

CHAP. V.

Treatment of preternatural cartilaginous Substances in the Joints.

IF we except making an incision into the joint, for the purpose of extracting the cartilaginous tumours, we are not acquainted with any certain means of freeing a patient from the inconvenience of this complaint. To this plan the danger attendant on all wounds of so large an articulation as the knee, is a very serious objection. Messrs. Middleton and Gooch endeavoured to conduct the extraneous body into a situation where it produced no pain, and to retain it in that position a long time by bandages, under the idea that the cartilaginous substance would adhere to the contiguous parts, and occasion no future trouble. No conclusion, however, can be drawn from the cases brought forward by these gentlemen, because they had no opportunity of seeing their patients again at the end of a reasonable length of time, and we know that loose car-

tilages in the joints sometimes disappear for half a year, and then make their appearance again.

Mr. Hey, impressed with a just sense of the dangerous symptoms which have occasionally resulted from the most simple wounds penetrating the knee-joint, very laudably tried the efficacy of a laced knee-cap, and the cases which he has adduced clearly demonstrate that the benefit, thus obtained, is not temporary, at least, as long as the patient continues to wear the bandage. In one case the method had been tried for ten years, with all the success which the patient could desire.

Contemplating the evidence which we have upon this subject, and the perilous symptoms sometimes following wounds of the knee-joint, I am decidedly of opinion that the effect of a knee-cap, or of a compress and roller, applied over the loose cartilage, when this body is so situated as not to create pain, and to admit of being compressed, ought generally to be tried before having recourse to excision. I say generally, because the conduct of the surgeon ought, in such cases, to be adapted

to the condition and inclination of the patient. If a man be deprived of his livelihood by not being able to use his knee; if he cannot, or will not, take the trouble of wearing a bandage; if he be urgently desirous of running the risk of the operation, after circumstances have been impartially explained to him; if a bandage should not be productive of sufficient relief; and, lastly, if excessive pain, severe inflammation of the joint, and lameness, should frequently be produced by the complaint; I think it is the duty of a surgeon to operate. It is very certain that success has generally attended the operation; but small as the chance is of losing the limb, and even life, in the attempt to get rid of the disease; yet, since the inconveniences of the complaint are, in most cases, very bearable, and are even capable of palliation by means of a bandage, endangering the limb and life in any degree must seem to many persons contrary to the dictates of prudence.

I am ready to allow, with M. Brochier,*

* Desault Journ. de Chirurgie, tom. ii.

that the danger attendant on wounds of the large joints has always been very much exaggerated, in consequence of ancient prejudices. But, making every allowance for the influence of prejudice, a man must be very sceptical indeed, who does not consider the wound of a large joint, like that of the knee, attended with real cause for the apprehension of danger. The fatal event of the second case in this dissertation proves the veracity of the remark.

At the end of Mr. Ford's case* we read on the subject of cutting loose cartilages out of the knee. "The society have been informed of several cases in which the operation has been performed; some, like this, have healed up without any trouble; others have been followed with violent inflammation, fever, and death itself."

* Medical Observations and Inquiries, vol. v. p. 334.

OPERATION.

Under circumstances such as I have already noticed, a surgeon is justifiable in undertaking to remove loose cartilaginous substances from the knee-joint, by dividing the capsular ligament. We have no instance recorded in which the complaint, when situated in any other joint, was sufficiently urgent to require this practice.

When we remember that the disorder is often attended with a degree of heat and tenderness in the articulation; when we recollect that the danger of the operation is, in a great measure, proportioned to the subsequent inflammation; and, when we also recal to mind that, if the wound unite by the first intention, a great deal of the danger is removed; we can entertain no doubt that the advice, delivered by several respectable surgeons, to keep the patient in bed a few days before operating, and to apply leeches and cold saturnine lotions to the knee during the same time, is fraught with the most commendable pru-

dence. Thus the joint is brought into a perfectly quiet state before the incision is made. Nor should the operation be undertaken before the bowels have been emptied by a mild saline purgative. As soon as the inflammatory swelling and tenderness have quite subsided the excision may be undertaken.

As the loose piece of cartilage may commonly be moved round the joint, the surgeon can generally choose the place for making the incision. Mr. Ford, Mr. Latta, &c. have made the wound on the outside of the joint. Desault used to bring the loose cartilage to the inside of the articulation, against the attachment of the capsular ligament, and then make the incision in that situation. Mr. Abernethy has recommended bringing the loose piece of cartilage on the outside of the internal condyle of the os femoris, and dividing the capsular ligament in that situation. Mr. Russell has recommended pushing the moveable body upward on the inside of the thigh, in order that the incision may be as far distant as possible from the moving surface of the joint. Mr. Hunter also preferred remov-

ing these loose bodies at the upper part of the joint, because there the bag, which contains the synovia, has less of the nature of a capsule.

For my own part I do not believe that this is a matter of very great importance, and, if the loose cartilage could be more easily fixed on one side of the articulation than the other, I should recommend the incision to be made in that situation. But the places chosen by Desault and Mr. Abernethy certainly seem the best for fixing the pieces of cartilage, when they can be readily brought there. The inner surface of the internal condyle is of considerable extent, and when the loose cartilage is situated upon it there is no difficulty in confining the little tumour there, provided the assistant places the points of his fingers round it in the manner which Mr. Abernethy has directed.

It is of great consequence that the assistant prevent the loose cartilage from gliding away from the place where the wound is made, for, in this event, it often happens that the extraneous substance cannot be immediately found

again, so that the purpose of the operation is frustrated, and, if the capsular ligament should be divided, all the risk of the operation is to be encountered without the smallest chance of the least benefit.

All operators have very properly adopted the plan of drawing the integuments to one side before making the incision, so that as soon as the excision of the cartilage is achieved the wound in the capsular ligament may become immediately covered with the skin. Thus, whatever bad effect the entrance of air might have is, in a great measure, prevented. The piece of cartilage, being exposed by the incision, is to be immediately taken hold of with a tenaculum and extracted.

In this sketch of the subject I can only add that the external wound is to be brought accurately together, and cool saturnine lotions are to be applied. If the patient be young and robust he ought to be bled. The limb is to be kept in an extended position, and completely motionless, and the whole treatment is to be rigorously antiphlogistic.

Though the union of the wound greatly diminishes the chance of future dangerous symptoms, experience shows that the limb ought to be kept in a quiet state for some days after the incision is quite healed. Mr. Bromfeild observes: "In most of the cases which I have seen, where the operation had been performed, and the proper attention paid to the situation of the limb, the patients did well; yet I must own that, in an instance or two, from mismanagement, I thought they would have lost their lives: for, as they suffered but little in the operation, and the wound was seemingly healed in a few days, by too early a use of the limb the most threatening symptoms came on."*

* Chirurgical Cases and Observations, vol. i. p. 335, 336.

CHAP. VI.

Of Collections of Fluid in the Capsular Ligaments.

VARIOUS fluids may accumulate in the cavities of the joints. That the synovia may collect in this manner we have already noticed. But, besides this affection, the joints are subject to a disease termed *hydrops articuli*, which consists of an accumulation of water in the capsular ligament, and is very analogous to the hydrocele, or collection of an aqueous fluid in the tunica vaginalis testis.

Suppuration also sometimes takes place in the joints, so that the collection of fluid consists of a purulent matter, which, however, is generally blended with the synovial secretion.

In violent contusions and sprains blood-vessels of the joint may be ruptured, and a large quantity of blood may be extravasated in the capsular ligament.

Of all the articulations in the body not one is so subject to hydrops articuli as the knee. Many other joints are, beyond a doubt, more frequently the seat of suppuration in consequence of injuries ; but none are so liable to dropsical disease. The largeness and looseness of the capsular ligament may, perhaps, afford a reason for this indisputable fact.

The causes of hydrops articuli are often not discoverable. The disease, however, is very frequently preceded by severe rheumatic affections and local violence. When the fluid is not so copious as to produce prodigious distention of the capsule, a fluctuation is easily distinguishable. Also, if the limb be extended, so as to relax the ligament of the patella, pressing the collection of fluid causes a rising of that bone, and a kind of fulness on each side of it. The disease is commonly not attended with much pain ; but there is a degree of stiffness experienced in the affected joint.

Mr. Russell* has adopted the idea that some cases of this kind are venereal, and others scrophulous; but, as he has not any good arguments in support of the opinion, it seems unnecessary to say more than that the mere existence of hydrops articuli in a subject, affected at the same time with syphilis, or scrophula, is no proof that the dropsical swelling of the joint depends upon the specific disease. Here also I must take the liberty to remark that, if a disorder yield to mercury, unreflecting writers are extremely apt to consider this as a criterion that the complaint is of a venereal nature. Let it be remembered, however, that mercury is one of the most powerful means of exciting the action of the absorbent vessels; and it is upon this principle that it cures numerous diseases of different natures without the least interference of any specific virtue. Since we see that hydrops articuli most frequently follows rheumatism, common inflammatory affections of the knee, and fevers, which greatly debil-

* On the morbid Affections of the Knee, p. 67.

itate the system ; and since the disease mostly yields to such treatment as is not potent enough to subdue scrophulous and venereal complaints; we have every reason to believe that, though the disorder may occur in scrophulous and venereal patients, yet it is always quite independent both of lues venerea and struma. It seems to me that the only sound conclusion to be drawn from the coexistence of hydrops articuli and one of these latter diseases, is that the presence of venereal, or scrophulous complaints, in any particular subject, is no reason why he should not be liable to become affected, at the same time, with another kind of disease. If we were to adopt the opposite mode of reasoning we might infer that a chancre was connected with the existence of a dropsical affection of the knee, because the sore was contracted, and made its appearance, during the prevalence of the disease of the joint.

TREATMENT.

When hydrops articuli occurs during the debility, consequent to typhoid and other fevers, the complaint can hardly be expected to get well till the strength of the constitution is, in some degree, restored. The connection between the local and constitutional disorder is well illustrated in a case which Mr. Russell has related (p. 192), and in which every local remedy was tried without avail. The disease, which would not yield as long as the debility consequent to a typhus fever lasted, got well spontaneously, immediately after the patient had regained his strength.

During eight or nine years I have been in the habit of frequently seeing, in St. Bartholomew's Hospital, collections of aqueous fluid in the joints; and I can conscientiously assert that I never witnessed any case, which did not ultimately yield to blistering the part, and maintaining a discharge from the blistered surface by means of the savin cerate.

When the disease is the consequence of fevers, a blister easily disperses the swelling as soon as the patient has recovered a little of his former natural vigour. The opperation of a blister may always be very materially assisted by the pressure of a bandage. Moderate exercise ; frictions with flannel impregnated with the fumes of vinegar ; camphorated mercurial ointment ; electricity ; and purging the patient with calomel, or kali acet. ; are also means possessing peculiar efficacy.

As I have never seen any case in which the circumstances seemed to justify making an opening into the joint for the purpose of evacuating the fluid, I shall not dwell upon this head. But excessive distention, in some neglected cases, might certainly become an urgent reason for performing such an operation. Also, if the complaint should resist all other plans of treatment, and the irritation of the tumour should greatly impair a weak constitution, the practice might be justifiable. A case answering this description is related by Mr. Latta, in which twelve ounces of fluid

were discharged. (System of Surgery, vol. ii. p. 490.)

SUPPURATION OF JOINTS.

When an abscess forms in the cavity of a joint the violence of the preceding inflammation is enough to inform us of the nature of the case. But, as abscesses are also liable to form on the outside of the capsular ligament, and we might sometimes be warranted in opening such collections, while we should not be so if they were contained in the joint itself, I think it may be useful to say a few words upon the mode of discriminating the two cases, when in the situation of the knee.

When the matter is within the joint pressure applied to the tumour causes an elevation of the pattella, as in hydrops articuli. Also, on placing the fingers on one side of the joint, and striking the opposite part of the tumour gently with those of the other hand, the distinct impulse of a fluid is communicated from one side of the articulation to the other. The same kind of fluctuation may be

felt on making the same experiment on any two different points, where the capsule is only covered with the integuments. An abscess of this kind has always been preceded by alarming disturbance of the constitution.

When the matter is on the outside of the joint, the tumour usually extends beyond the limits of the capsular ligament: for instance, the swelling ascends higher up the thigh, or descends lower down the leg, than the capsular ligament itself naturally reaches. The tumour is usualy confined to a part only of the circumference of the knee, and there it causes a more sudden prominence than results from an abscess in the joint. If the swelling extend around the patella, this bone seems more sunk than in the natural state.

A FEW PRACTICAL REMARKS.

When an abscess has taken place in the vicinity of a large joint, there can be little doubt concerning the propriety of discharging the matter by an early incision. Such purulent collections, when situated about the knee,

frequently lie under the femoral fascia, and it is highly deserving of notice that all tendinous expansions powerfully retard the progress of matter to the surface of the body. In this circumstance the pus is apt to diffuse itself extensively on all sides, and even to make its way, by means of ulceration, into any neighbouring cavity. Hence, in order to avoid the possibility of the latter occurrence, it is best to make an opening into the abscess.

When the matter is in the joint itself, we should feel exceedingly reluctant to make an unnecessary opening. Here the degree of distention, occasioned by the abscess, ought to decide the proper line of conduct. As puss has not that power of corroding which was attributed to it by the antient surgeons, its mere presence in the joint will not be productive of any bad consequences. When, however, its quantity is so large that it forcibly distends the capsular ligament, and causes great pressure on the articular cartilages, its longer continuance in the joint may occasion the most irreparable mischief, and even death. Cases of the description which we are now

considering, are always highly perilous, and frequently oblige the patient to submit to amputation as the only means of preserving life. The cartilages and ligaments cannot bear this state of disease, in which they are violently inflamed, and, at the same time, irritated by the pressure of the matter. They ulcerate and slough, and the articular surfaces of the bones become bare, while the matter also makes its way through the capsule, and presents itself under the integuments. If, under such circumstances, the state of the constitution should allow the surgeon to persevere in an attempt to save the limb, the propriety of opening the abscess is too obvious to admit of doubt. The operation should be done so as to occasion as little irritation as possible. A small puncture with a lancet will suffice, and it seems safer to endeavour to heal the wound by the first intention, and to repeat the operation, if circumstances should demand it, rather than to leave the wound unclosed.

If the contents of the abscess should be discharged through an ulcerated opening, the

treatment is to be conducted almost on the same principles as are applicable to all acute abscesses ; and it seems unnecessary to expatiate further on the subject.

OF TUMOURS OCCASIONED BY BLOOD.

When the collection of fluid in a joint makes its appearance almost immediately after a severe sprain, or violent contusion of the part, and continues to increase gradually for some time afterwards, there is every reason for supposing that the principal part of the contents must be blood. The formation of pus, and the secretion of any aqueous fluid, could not have taken place in so short a time. The extravasation of blood within the large joints is, I believe, exceedingly uncommon. Tumours composed of this fluid, and set down in systematic works as extravations within the capsular ligaments, are generally on the outside of the cavities of the articulations.

If blood, however, should be known to be certainly effused in the cavity of a joint, it would not be warrantable practice to make an opening for its evacuation. Its mere presence is not likely to produce bad consequences, and in the end it will be absorbed. Frictions with camphorated liniments would accellerate this desirable event. If an opening were made, the coagulated state of the blood would, in many cases, render its evacuation impossible.

With respect to extravasated blood in general surgeons are now well aware how unnecessary, and even injurious it is, to make an opening into almost all tumours of this kind. The opening frequently fails in procuring its discharge, and the admission of air occasions the blood to putrify in cases in which, under different treatment, it might have continued without producing the smallest irritation.

Mr. Hey mentions a case in which the knee-joint was wounded, and blood insinuated itself into it. Though it was impossible to

prevent the circumstance, yet no harm resulted from the extravasation; and the fluid was absorbed without having created the least trouble.*

* Practical Observations on Surgery. Case, p. 351.

PART II.

OF THE WHITE SWELLING OF THE KNEE, AND THE TREATMENT OF THE DISEASE.

CHAP. I.

Preliminary Remarks.

THE white swelling, or spina ventosa, as it is not unfrequently called, in imitation of the Arabian writers, Rhasis and Avicenna, is a disease in this country particularly common and peculiarly intractable. The nations of the continent are, unquestionably, as subject as we are to chronic enlargements of the knee-joint. Foreign surgeons describe numerous varieties of a disease, which many English writers would term *rheumatic* white swellings; but they acknowledge that the

scrophulous species of this disorder does not commonly occur to their notice.*

Wiseman was the first who used the term *white swelling*, and, as Mr. Pott observes, the expression is not very unapt, because it conveys an idea of one mark of the distemper, which is, that notwithstanding the increase of size in the joint, the skin is not inflamed, but retains its natural colour.

It is not my intention to occupy the time of my readers by considering the white swelling,

* Fungus scrophulosus, terribile profectò malum, rariùs in Germania occurrit, frequentiùs in Britannia.—C. G. T. Kortum in Comment. de Vitio Scrophuloso, tom. 333. ii. Edit. 1790.

Schrophulosa materia sanè potest pessimæ indolis fungum causare, et quamquam is apud nos communiter non obtinet, scire tamen juvat, scrophulas Anglis nominatas morbum esse in illa regione ut frequentem, sic ipsi nationi peculiarem, &c.—Brambilla in Acta Acad. Medico-Chirurgicæ Vindob. tom. i. p. 20.

Petit, speaking of the spina ventosa, remarks: "*Je crois cependant qu'il faut s'en rapporter aux Anglois plus qu'à tous autres, vu qu'il en arrive très souvent dans leur pays, et encore plus dans quelques isles du nord qui leur appartient.*"—Mal. des Os, tom. ii. 359, edit. 1741.

pædarthrocaces, and spina ventosa,* as distinct varieties of disease. A few observations, however, will be offered in the course of the dissertation, for the purpose of marking more particularly the discriminating characters of the scrophulous distemper of the knee, to which I could wish that the appellation of white swelling were confined.

The morbid enlargements of the knee are certainly sufficiently numerous and various to admit of some useful classification, and I cannot refrain from lamenting that English surgeons, who are generally the foremost in the promotion of their particular science, should not attempt to arrange the diseases to which I allude, in a better manner than they now are. This, however, would form a work of considerable magnitude, and the plan is quite incompatible with the usual extent of a dissertation. The only distinctions which systematic writers have drawn, are into rheumatic and scro-

* Many modern authors imply by this term, a collection of matter in the medullary structure of a bone. Such a case, however, I believe, is very uncommon.

phulous white swellings; the latter kind of which tumours they further distinguish into such as primarily affect the bones, and then the ligaments and soft parts; and into others which first interest the ligaments and soft parts, and, at length, affect the bones.

These views of the subject have some foundation; but they are by no means sufficiently comprehensive; and the propriety of denominating some of the affections *rheumatic* might be questioned by pathologists, whom we could not, in this instance, upbraid with unseasonable scepticism.

If I should be asked the reason why I am dissatisfied with the few distinctions introduced into the subject, my answer is, that I frequently see more numerous forms of such disease in the knee than are distinguished by names, or than ought to be arranged under the head of white swellings. I see some morbid joints in which the bones, ligaments, and cartilages, can hardly be said to be materially diseased. The whole of the distemper seems to consist in the deposition of a glutinous lymph, which adheres to the most subtile la-

minæ of the cellular substance, and to the surface of the tendons, ligaments, and capsule of the articulation. Brambilla has named this disease *fungus articulationis*, and he says that it is more common in Germany than in any other European country.* But such a malady is certainly known in Great Britain, and most surgeons would call the complaint a white swelling.

I see other morbid affections of the knee, in which the bones are not at all diseased, though the ligaments and cartilages have suffered considerable alterations; though the joint appears to the surgeon to be enormously enlarged, and the malady has even been so severe as to require amputation.

I see another frequent form of disease in this articulation, in which kind of affection the ligaments, cartilages, and bones are not the parts principally diseased; in which disorder the joint is greatly enlarged, and the bulk of the swelling arises from a morbid condition of parts on the outside of the capsular liga-

* Acta Acad. Josephin. Vindob. p. 1.

ment ; and in which case the disease does not consist of a thick kind of lymph diffused throughout the structure of the parts on the outside of the joint, but of a morbid change, in which such parts become, at once, enlarged, thickened, and bereft of all their original firmness. This malady also is oftentimes so terrible as to render amputation of the limb indispensable.

There are other cases in which the bones are softened in their texture, while the ligaments are distempered, the cartilages absorbed, and the bones carious in an advanced stage of the disease.

In some instances there are spinous, angular depositions of osseous matter upon the surface of the diseased bones ; while in the neighborhood of the articular part of the same bones there are deep excavations in consequence of caries.

I might enumerate several other varieties not deduced from the morbid anatomy of the joints, but from the difference in the symptoms and progress of the complaint, as well as from the particular constitutions in which such

forms of disease occur. Were I to proceed further at present I should not leave room for the discussion of such points as I particularly wish to comprehend in this production. At some future opportunity, perhaps, I may renew the consideration of this important part of the subject: at all events I confidently hope that the few suggestions here made may awake the attention of others, and be of some little use to any succeeding writer, who may attempt to discriminate the different natures of the various morbid enlargements of the knee.

Caries of the bones has been mentioned by the majority of writers as necessarily attendant on white swellings. Some limitation, however, ought undoubtedly to be made to the remark.

If the term *caries* be meant to denote that morbid process in a bone, which is analogous to ulceration of the soft parts, surgeons are not warranted in applying the expression to the true scrophulous affection of the head of the tibia. Whether the disorder first originate in the bones, or ligaments of

the knee, it is not till after the disease has made considerable progress, and actually destroyed the cartilaginous coverings of the articular surfaces of the bones, that we find the tibia and femur affected with any morbid change at all analogous to caries.

The scrophulous disease of the bones is most prone to attack such as are soft and of a spungy texture: so is caries; but then the effects of the former are widely different from those of the latter. The peculiar alterations which the scrophulous affection first produces, are a partial absorption of the earthy particles of the diseased bone, and a deposition of a softish matter into the interstices of its structure. There is no breach whatever occasioned in the seat of the disease by this change.

On the other hand, in caries, as the osseous particles are absorbed, or crumble away, no effort is made to repair the breach of continuity, and an excavation is necessarily the consequence.

Such is the first and most common morbid change, which the head of the tibia undergoes in the disorder implied by the scrophulous

white swelling. In several strumous joints which I have dissected, I have also found that a morbid deposition of a cheesy kind of substance, blended with phosphate of lime, took place on the outside of the heads of the diseased bones. I have pieces of scrophulous bones in my possession, on which these depositions, before they were considerably destroyed by maceration, had the appearance of opaque crystallizations. I have seen similar specimens in Mr. Abernethy's anatomical museum.

The caries which attends a more advanced stage of the white swelling follows the ulceration and destruction of the articular cartilages, or accompanies the formation of abscesses around the articulation. In these cases we find, on dissection, that a part of the bone is rough; and where this roughness is situated a chasm more or less extensive and deep has been formed in the substance of the bone.

I have wished to be particular in exposing the absurdity of confounding the scrophulous alteration of the bones with caries, because

the matter seems to me not to have been hitherto properly explained by any author.

By caries, however, several writers seem to imply the mortification of part of a bone. This misapplication of the term is exceedingly censurable; first, because it is meant to signify what very rarely happens in scrophulous diseases of the joints, or in any species of white swelling whatever; and, secondly, because the sentiment which it now conveys has led to very unwarrantable practices, with a view of promoting an exfoliation, which was judged to be inevitable.

It is observed by a gentleman, who has written a very good practical treatise on the present subject, that, "in the carious stage of this disease it has been said, that to expedite a cure exfoliation should be promoted; but experience tells us that exfoliation rarely occurs; and when the complaint does not seem to require it, may we not infer that it should not be encouraged? It is very probable that if means had not formerly been used to produce

this effect, it would have occurred as seldom then as we now find to be the case."*

From the manner in which I may have expressed myself I should be sorry to be misunderstood. I do not mean to deny that the articular parts of the bones are not very frequently found carious in this disease; but only to assert that caries is so far from constituting an essential feature of the disorder, that it rarely occurs until the cartilages of the joint have been more or less destroyed; (for, after this it always takes place) and that the morbid alteration previously observable in the bones is widely different from a true caries.

The circumstance of the bones being sometimes quite free from disease, even when the knee seems of considerable magnitude, must greatly strengthen the tenor of the above observations. In this instance the ravages of the disorder particularly affect the ligaments of the joints, and the fat and cellular substance on the outside of the capsule. Mr. Russell,

* Practical Observations on the Disease of the Joints, commonly called White Swelling. By B. Crowther. P. 6—7.

(p. 30.) diligently describes how much the soft parts contribute to the swelling in the disease. Speaking of the appearances on dissection he observes: "The great mass of the swelling appears to arise from an affection of the parts exterior to the cavity of the joint, and which, besides an enlargement in size, seem also to have undergone a material change in structure. There is a larger than natural proportion of a viscid fluid intermixed with the cellular substance; and the cellular substance itself has become thicker, softer, and of a less firm consistence than in a state of health." (P. 15.)

Mr. Crowther says: "I have shown to my medical friends some diseased joints, of which upon examination it was impossible to decide with accuracy as to the state of the parts: some of the cases they, as well as myself, considered only as an enlargement of the bone; but after the application of leeches, and an artificial drain derived from the integuments covering the joint, there did not appear the smallest enlargement of the heads of the bones."

I have seen many amputated joints dissected, in which it was doubtful whether the cartilages were in the least affected, while the heads of the bones were not more softened than in the natural state. Still the operation was rendered necessary by the hectical condition of the patients. In these instances the whole disease seemed to consist in such an alteration of the soft parts surrounding the articulation, as is described by Mr. Russell, together with a thickened and softened state of the capsular and other ligaments, and a collection of a purulent, shining coagulated matter in the cavity of the joint.

Mr. Russell appears to adopt the opinion, that the disease always commences in the ligaments and membranes of the articulation, and even asserts that he never heard or knew of an instance in which the tibia was enlarged from an attack of white swelling. (P. 37.) It was this declaration, made by a surgeon of experience, which first called my attention to this point, and, though it was long after my first perusal of Mr. Russell's book that I formed a decided opinion on the matter, yet can-

dour obliges me to state that I derived the original intimation from the above mentioned publication.

Many surgeons, I feel certain, will be disposed to grant Mr. Russell a very small portion of praise on this account ; and indeed his judgment might be criticised for mentioning so lightly a fact which is highly deserving of the most extensive publicity. When we consider that numerous joints are amputated sooner than they otherwise would be, in consequence of the surgeon's firm persuasion that the bones are enormously enlarged, we must acknowledge that the removal of this erroneous opinion ought to be effected in such a manner as will leave a strong and lasting impression on the minds of the great mass of surgical practitioners. The slight allusion which Mr. Russell has made to the subject, is little calculated to excite general attention, and, even at present, there are very few surgeons who do not place the most implicit faith in the expansion of the heads of bones, in cases of white swellings.

It was in my *First Lines of the Practice of Surgery* that the doctrine of the enlargement of the heads of the bones was first publicly opposed with any degree of force. The opposition is still more vigorously maintained in this dissertation.

Here I cannot deny myself the pleasure of giving praise to my friend Mr. Lawrence, a gentleman whose heart is enriched with the most generous qualities, and whose mind is adorned with every requisite for forming a truly great man. His penetration had detected the error into which surgeons had fallen respecting the expansion of the heads of the bones, quite independently of any writer whatsoever; and the frequent conversations which I had with him upon this subject tended, in a very powerful manner, to dispel the few last doubts which I entertained.

I must candidly confess that, deceived by the feel of many diseased joints, and influenced by general opinion, I once imbibed the idea that there is often a regular expansion of the heads of scrophulous bones. But, excepting an enlargement which arises from the de-

position of osseous matter on the outside of the heads of the tibia, ulna, &c. so as to form sharp, angular, scabrous projections on them, and which alteration cannot be called an expansion of those bones, I have never been an eye-witness of the head of a bone being of preternaturally large dimensions, in consequence of the disease known by the name of white swelling. I have frequently been in the habit of inspecting the state of the numerous diseased joints which are annually amputated in St. Bartholomew's Hospital, and though I have for several years been attentive to this point, my searches after a really enlarged scrophulous bone have always been in vain. The change which the head of the tibia undergoes in many cases, is first a partial absorption of the phosphate of lime throughout its texture, while a soft kind of matter seems to be secreted into its substance. In a more advanced stage, and indeed in that stage which most frequently takes place before the joint is amputated, the head of the bone has deep excavations formed in it in consequence of caries,

and its structure is now so thoroughly distempered and softened that, when any instrument is pushed against the carious part, it easily penetrates deeply into the bone.

A cursory examination of a diseased joint, even when it is cut open, will not suffice to show that the bones are not preternaturally enlarged. I dissected one this morning (November 12, 1806,) and, on first looking at the parts, the swelling had every appearance of arising from an actual expansion of the bones. An intelligent medical friend who was present felt the ends of the tibia and fibula, after the integuments were removed, and coincided with me that the feel, which was even now communicated, seemed to be caused by a real swelling of the bones themselves. But, on cleaning them more, the enlargement was demonstrated to arise entirely from a thickening of parts on the outside of the bones.

However, from all that I have seen of the disorder under consideration I am led to believe that surgeons have good reason for supposing that some white swellings commence in the ligaments, and afterwards affect the

bones; while others begin in the spongy texture of the bones, and afterwards affect the ligaments. At this opportunity I cannot refrain from remarking that, as the ligaments are almost invariably found distempered, and the bones are not so, we must infer that in the majority of instances the disease commences in the former parts.

The morbid enlargement of scrophulous joints is always made to appear greater than it really is, by the emaciation of the limb both above and below the disease. This fact is so obvious that I need not detain my readers with further observations on the subject.

From such preliminary remarks I proceed to treat of the symptoms of white swellings.

CHAP. II.

An Account of the Symptoms, and Progress of White Swellings.

THE large joints, such as the knee, ankle, wrist, and elbow, are most exposed to the attack of this direful malady. In the first stages of the disease the skin is not at all altered in colour. Sometimes the swelling yields in a certain degree to pressure ; but it never pits, and is generally sufficiently firm to make an uninformed examiner believe that the bones contribute to the tumour. In some cases the pain is vehement from the very first, while, in other instances there is hardly any pain in the incipient stage of the affection. But whatever the degree of pain may be, it particularly affects only one part of the articulation, and this is usually its centre. In some cases the pain seems to be situated in the head of the tibia ; but wheresoever it occurs, I have always observed that it is always confined to one particular spot. Sometimes it is incessant ; at oth-

er times it intermits; and, in a few cases, it recurs so regularly, at stated times, that it deserves to be called periodical. When the patient is warm, and especially when he is heated in bed, he commonly seems to experience an exasperation of the pain.

In most cases the tumour is at first very trivial, or there is even no swelling at all, though the pain be very considerable. A fulness is first observed to occupy the little hollows, hich are naturally situated on each side of the patella. This prominence augments, and the whole articulation soon becomes every where palpably augmented in circumference.

As the patient cannot bear the weight of his body on the affected limb without a considerable increase of pain, he gets into the habit of only touching the ground with his toes, and thus the knee is generally kept a little bent, and the power of completely extending the limb again is soon lost. In advanced cases the knee is always found in a permanent state of flexion. It is observed that, in this disorder, the swelling is always preceded by pain; but the interval between the first oc-

currence of the two affections is very various in different cases.

At length the diseased joint attains an enormous size; but the skin is not materially affected. The only changes observable in it are the appearance of varicose veins, and a shining smoothness. The latter circumstance seems to be owing to the distention, which obliterates the natural wrinkles of the integuments. The skin also cannot now be pinched up into a fold, as it could in the early state of the disorder.

When the distemper has proceeded further, abscesses generally form around the joint, and their contents are, in time, usually discharged through the ulcerated openings. These ulcerations sometimes heal, and other similar abscesses take place. The period at which such collections of matter occur, after the commencement of the disease, is extremely various in different cases. In some cases such abscesses form in a few months after the joint has become affected; in others they do not take place for many years.

The patient's health, in the mean time, becomes gradually impaired in consequence of the local disease. His appetite fails; he cannot sleep at night; his pulse is small and frequent; he has profuse perspirations; and his bowels are not unfrequently very much disordered with an obstinate and debilitating diarrhœa. Under such symptoms dissolution soon follows, unless the constitution be speedily freed from the irritation of the local malady. In different subjects, however, the progress of the disease, and its effects on the constitution, are very different in regard to the quickness with which they take place. In some instances the swelling of the knee, and the derangement of the health, do not arrive at a considerable pitch till several years have expired after the first attack of the complaint. In other examples the disease of the joint acquires an immense size, and falls into a state of suppuration in the course of half a year, at the end of which short time the patient's strength also may even be quite exhausted by hectic complaints.

Such white swellings as have been termed *rheumatic* are certainly very distinct diseases from the true scrophulous affection of the large joints. In the former the pain is said never to occur without some swelling being evident, nor does the acuteness of the pain subside in proportion as the tumefaction increases. Genuine white swellings, on the contrary, are always preceded by pain, which is usually not so acute after the swelling appears as it was before.

I believe that all those instances in which the bones are found not at all altered in texture, and the whole mass of disease seems to be confined to the soft parts, are not scrophulous white swellings. In rheumatic cases of this kind the pain is not confined to a particular point; but extends over the whole joint. If a man live till the age of five and twenty, quite free from every symptom of scrophula, I believe he can never, after this period, become first affected with a scrophulous disease of the knee. I believe also that all cases in which the head of the tibia loses a good deal of its natural firmness, in consequence of a morbid

alteration, which I have already endeavoured to describe, are scrophulous cases.

The limphatic glands in the groin are often enlarged in consequence of the affection of the knee; but I never saw this secondary complaint prove permanently troublesome. Mr. Russell makes a similar observation.

The head of the tibia seems to suffer considerably more than the condyles of the femur. I have dissected several scrophulous knee-joints, in which the articular surface of the femur had not a single rough or carious point, while that of the tibia had suffered considerably from caries all round its circumference. The decay of the cartilages of the joints is observed to commence at their edges, and to extend gradually toward their centre; and this mischief is always much more advanced on the tibia than on the os femoris.

When white swellings commence in the bones there is great reason to believe that, in knee cases, the tibia is the bone in which the disease has its origin.

In young subjects the distemper sometimes, though very rarely, produces such a complete

destruction of all the ligaments of the knee that the bones of the leg become drawn up the posterior part of the thigh bone, by the strong action of the flexor muscles of the leg. I have been informed by Mr. Lawrence that he saw in the country, last summer, a child with a scrophulous knee joint, which had a very singular appearance, in consequence of the great retraction of the bones of the leg in the above manner. Mr. Langstaff lately showed me a patient with a diseased knee, whose leg could be bent to each side, for a very considerable distance, both when the knee was extended and bent. This was certainly not a scrophulous case ; but the above extraordinary looseness of the joint could only result from some affection of the ligaments.

In an advanced stage of white swellings I believe that a partial luxation, consisting of a retraction of the heads of the tibia and fibula upwards, towards the tuberosity of the ischium, is not very uncommon. I have never seen any case in which the head of the tibia was completely separated from the body of the bone, in the way in which it is said sometimes to be in young subjects.

CHAP. III.

Of the Causes of the White Swelling, and the Grounds on which it is regarded as a scrophulous Disease.

I AM one of those persons who believe that every subject of a scrophulous habit is predisposed to certain forms of disease in the joints, and it is to these forms alone that I shall allude, when I make use of the term white swelling, in the present chapter.

In the constitution which I have just mentioned, every cause which is capable of producing inflammation, or any morbid and irritable state of the knee-joint, is very likely to be productive of such mischief as may terminate in the severe disease of which we are now treating. A cold stream of air blowing against the neck of a scrophulous subject, or exposure to damp, will often produce an inflammation and enlargement of the lymphatic

glands, in the vicinity of the basis and angle of the jaw, and this affection may terminate in a scrophulous disease of those glandular parts.

It is also a fact, which Mr. Burns * of Glasgow has accurately noticed, that causes which would scarcely induce inflammation in a healthy person, may induce a local disease and inflammation in a scrophulous habit. Hence, an enlargement of the glands of the neck is more apt to occur in such a temperament than in a person of a sound constitution.

These observations are also applicable to the knee-joint. External violence, exposure to damp and cold, will much more readily produce irritation in that articulation, when the patient is scrophulous, than when he is of a sound habit of body. Even when such irritation is produced in the knee of a healthy person, by these causes, it is more easy of cure, and betrays no tendency to specific morbid action. But when the knee-joint is at all irritated in a scrophulous subject, that morbid affection

* Dissertations on Inflammation, vol. ii. p. 341—351.

which constitutes the white swelling is very likely to ensue. Thus, rheumatic complaints of the knee often become the exciting cause of scrophulous disease in the articulation, when the constitution is what is called scrophulous.

From the preceding statement we may easily discern why white swellings, in a great number of instances, appear to originate without any known cause. Mankind are little inclined to suspect that going out in the damp, exposing themselves to cold, or meeting with a trival contusion of the knee some weeks before any serious uneasiness is felt in the joint, can have any connection with the origin of the complaint. Such occurrences are frequently not even remembered. In young subjects, who are certainly more liable than adults to white swellings, we cannot wonder that no reason can generally be assigned for the commencement of the disorder. They are frequently mere infants, and the slight injuries which larger children meet with in play are no sooner received than forgotten.

Hitherto I have assumed the point that the white swelling is a scrophulous disease, and it

remains for me to notice the arguments on which this doctrine is founded. We shall soon perceive that the most weighty reasons, the opinions of the most accurate observers, and the evidence of daily experience, combine to establish the theory. Wiseman calls the spina ventosa a species of scrophula, and remarks that infants and children are generally the subject of this disease. (Book iv. chap. 4.) Senerinus* observes that this disorder is almost peculiar to youth. Petrus de Marchettis† has seen both men and women afflicted with the disease as late as the age of five and twenty ; but not afterwards, unless they had suffered from it before that period, and had not been cured. R. Lowerus also maintains that adults never become affected with the malady, unless they have been attacked by it in their youth. Chun, however, who informs us (in a dissertation on pædarthrocaces) of the opinion entertained by Lowerus, adduces some cases to show that the disease may now

* De Pædarthrocace, cap. xii. and xvii.

† Obs. Med. Chir. rarior. p. 118.

and then occur, for the first time, in persons of advanced age. But in the present enlightened state of surgical knowledge we may doubt that such cases were truly scrophulous white swellings. At all events the first occurrence of the latter kind of tumours, like the first occurrence of scrophula, in adults older than twenty-five, is equally rare. I have several times asserted that every diseased knee-joint is not to be indiscriminately set down as a scrophulous disease.

The white swelling, like other scrophulous affections, seems very often to be an hereditary disease. Foreign writers, among whom I need only mention the celebrated Petit and Brambilla, have very justly remarked that the English, who are peculiarly liable to scrophula, are also particularly subject to white swelling. But what occasion is there for further evidence on this point? Daily experience informs us that young persons affected with this disease are, for the most part, either manifestly scrophulous, or have formerly been so. Many have, at the same time, enlarged lymphatic glands in the neck or other situations;

and many are known to be descended from parents who had scrophulous diseases. Mr. Crowther says, " most of the patients whom I have seen afflicted with this disorder were of a strumous habit, and descended from parents of a similar constitution. In some cases it has also appeared that many of their families have been destroyed by phthisis pulmonalis." (p. 4.) The fine skin, the tumid, pale, unhealthy countenance ; the delicate complexion ; the light blue eyes ; and the swelling of the upper lip ; those striking appearances so indicative of a scrophulous habit are also frequently observable in persons affected with white swellings. But what I consider as one of the strongest tests of the disorder being of a scrophulous nature, is the coagulated, shining matter, resembling the white of an egg, so frequently found, not only in the cavity of the morbid articulation, but also on the outside of the capsular ligament, particularly in the abscesses which form in an advanced stage of the disease. I believe that such shining, flaky, coagulated matter is peculiar to scrophulous affections. We frequently find flakes of this

kind of substance blended with the pus which is discharged from lumbar abscesses ; and it almost always constitutes a large portion of the matter which collects in the suppurated state of scrophulous lymphatic glands in the *neck*. If this kind of matter be a criterion of scrophulous disease, the species of white swelling in which such a secretion takes place, without any softening of the heads of the bones, is also to be considered as a strumous affection.

CHAP. IV.

Treatment of White Swellings.

BEFORE entering upon this important part of the subject I think it of great consequence to state that white swellings, whether of that description which has been termed rheumatic, or of that kind which is denominated scrophulous, present themselves in practice in two very different stages : in one stage there is a degree of acute inflammation about the joint, in the other the affection is altogether chronic.

In the incipient, and indeed very often in the more advanced period of the disorder, it is exceedingly difficult to persuade patients to keep the joint entirely at rest. Imprudent attempts to walk too frequently produce a state of the affected joint, in which the skin is tender when touched, and seems to the fingers of an examiner hotter than the integuments of the opposite knee. Besides, we have already no-

ticed that common inflammation often becomes the exciting cause of most obstinate diseases in the articulation.

In the ordinary state of white swellings the skin does not appear to be hotter than that of a healthy knee, and the integuments can be handled without producing any particular uneasiness to the patient: in short, we have every reason to regard the malady as one of a chronic nature.

When a surgeon is called to a case in which there is evidently acute inflammation present, there can be no doubt that topical bleeding and cold saturnine lotions are means which may be eminently serviceable; and what is implied by the phrase *antiphlogistic treatment* may now be advantageously employed. But such are my feelings upon this matter that I cannot withhold my strongest censure from those practitioners who lose weeks and months in the adoption of such treatment. The plan is truly beneficial and scientific as long as the integuments are hot and tender, and the joint is affected with very acute and general pain, and the patient is indisposed with the usual

symptoms of inflammatory fever. But no sooner is this stage past than such treatment becomes ridiculously inert, and by preventing the employment of really efficacious measures it may even be considered as, in some degree, conducive to the increase of a most terrible disease.

Having treated of inflammation in the joints in the first part of the dissertation, I feel it quite superfluous to say any thing here concerning such means as are adapted to remove the unusual tenderness and heat of the skin sometimes attendant on white swellings. The best plan of arresting the morbid process in the bones, ligaments, cartilages, and soft parts surrounding the articulation, and the most successful method of diminishing the chronic enlargement of the joint, are subjects much more worthy of our present investigation.

If we consult the writings of Hippocrates, Celsus, Rhases, Ætius, Hieron, Fabricius, &c. and compare their remarks with the inculcations contained in modern books, we shall soon discover that the practice applied to the morbid affections of the joints by the very best

practitioners of the present day, is not materially different from what was employed by our predecessors many centuries ago, in similar cases. As Mr. Crowther accurately remarks, we learn from the ancients that "they used local and general blood-letting, the actual and potential cautery, with vesicating and stimulating applications to the skin. They further maintained that sores produced by these means should have their discharge promoted, and continued for a considerable length of time."

Some mild cases of white swelling, but not scrophulous ones, I should conceive, may be cured by using topical applications composed of strong astringents of the mineral and vegetable kingdom. Mr. Russell recommends a decoction of oak bark, containing alum.

There are other instances in which the employment of sea water, as a lotion to the knee, is certainly beneficial. I have seen several cases in which the enlargement of the joint has been diminished by this application; but I cannot say that I have ever known one example in which a cure was accomplished by it.

Sea air and sea bathing together undoubtedly have very powerful effects on scrophulous affections in general, and most particularly so on such diseases when situated in the joints; and, I believe, few will be inclined to question this irrefragable truth, that residing in a maritime situation and bathing in the sea have immense influence in checking the progress of scrophulous diseases of the joints. However, though this favourable opinion ought to be entertained of sea air and bathing unitedly, yet, as I have seen sea water alone very extensively used as a lotion for white swellings in this metropolis, and, upon the whole, have seen only very little benefit result from the practice, I should be guilty of perversion were I to say a great deal in its commendation. Also, with respect to residing on the sea coast and bathing, as means to be tried together, my own individual opinion is, that such a plan ought only to be valued as an auxiliary one, to be pursued at the same time that other more potent measures, hereafter to be noticed, are put in execution.

I am sorry that the observations which I have had opportunities of makingare not much in favour of electricity as a means of curing white swellings. In a few instances, it is true, it has appeared to do good ; in a few others, however, according to my judgment, it appeared rather to exasperate than diminish the disease. In by far the majority of cases in which I have seen electricity tried the effects were so insignificant that it was difficult to pronounce whether they were of a favourable or an unfavourable nature. The greatest evil of employing inert means is the false confidence excited, which only leads the surgeon to postpone the adoption of such measures as can alone be useful, and, what is the more to be regretted, effectually useful, in most cases, only in the less advanced stages of the malady.

With regard to fomentations and poultices I consider them as perfectly inert, and quite unworthy of the praises which some writers bestow on them. *Venienti occurrite morbo* is a maxim which I should particularly wish to inculcate in this branch of surgery. Whoev-

er does nothing does harm, because he is allowing an insidious disease to gain ground; and, as inert measures create a semblance of something being done, they ought to be most strongly reprobated, as, in fact, preventing other really proper steps from being pursued. Humanity in the practice of surgery does not consist so much in withholding strong and vigorous measures, as in boldly deciding to employ them the very first moment when they are indicated. Let this be an axiom, which every lecturer should instil into the minds of his pupils; let the sentiment be constantly alive in every one who professes the noble art of surgery. Then we should no longer behold the instruments of surgery in the hands of men whose indecision paralyses whatever knowledge they possess; then we should see the due degree of benefit accrue to the world, that degree, which the present cultivated state of surgical science ought to afford.

I am aware that the French surgeons have extolled warm stupes, and, indeed, they support their commendations on the solid basis

of stubborn facts. But it is to be noticed that the mildness of white swellings on the continent will not allow us to consider them as a malady at all like what we find them to be in this island, and consequently it would be absurd to take French practice as a model for English practitioners.

The only method of treatment which my own personal experience enables me strongly to recommend, consists in keeping up a discharge from the surface of the diseased joint. The opportunities which I have had of observing the effects of blisters and caustic issues, rather incline me to prefer the former to the latter. I have seen great good derived from both; but more from blisters than from the other kind of issue. There are instances in which I should employ vesicating applications; there are others in which I should prefer making an eschar with caustic. To keep a blister open a very long time with the savin cerate, is generally attended with a good deal of pain to the patient and trouble to the surgeon. The cuticle is secreted so rapidly on the surface of the cutis that it becomes necessary to

scrape the white matter off the blistered surface very frequently, in order to keep it from healing. This operation always gives infinite pain, which is the more distressing, because it is to be so often reiterated.

When a blister is preferred it is best to apply a large one. Some practitioners recommend blistering first one side of the joint and then the other, alternately, for a considerable time. Thus, while one blister is healing another is forming, and the method is said to be attended with considerable success. I cannot say that I have seen this plan followed up as it ought to have been; but from all I have seen and heard I am induced to entertain a very favourable opinion of such practice, and shall certainly very soon take an opportunity of giving it a fair trial.

I have only to repeat that, in my opinion, a large blistered surface properly kept open by means of the savin cerate, has some advantage, in point of efficacy, over issues made with caustic and kept open with peas or beans.

The plan of dressing blisters with the savin ointment was first introduced into practice by

Mr. Crowther, and he is entitled to the whole of the honour attached to this improvement. The former method of dressing excoriated surfaces with the ointment of cantharides was often productive of very troublesome stranguries and retentions of urine, complaints which never occur from the external employment of savin.

With respect to caustic issues, they are at first even more painful than blisters; but they afterwards become more like indolent sores, and are more easily kept open for a length of time, than a blister. They are usually made on each side of the diseased joint, and their size, for an adult, is commonly about the same as that of a half crown. I need not detain my readers with an account of the manner of making them and keeping them open, such circumstances being familiarly known to every novice at all initiated in the surgical profession.

It has been a disputed point, whether blisters and issues produce benefit upon the principle of counter-irritation, or in consequence of the discharge which they occasion. I am

inclined to believe that they act beneficially in both ways. Rubefacients are certainly efficacious in exciting the action of the absorbents, and probably also in modifying the action of the vessels in diseased parts. I have not mentioned them in this dissertation because I am decidedly of opinion that, whenever such applications might be, in some degree, serviceable in cases of whi e swelling, a blister would be so in a still greater degree. Rubefacients must obviously act altogether on the principle of counter-irritation. A blister operates in the same way, but much more powerfully; and, if efficacy also result, and I firmly believe that it does result, from maintaining a copious discharge from the vicinity of the disease, vesicating applications must always be preferable to mere rubefacient ones.

With regard to constitutional remedies in cases of white swellings, little is to be said. Many diseased joints are undoubtedly connected with a kind of constitution, which we call scrophulous. In the present state of medical science we are not acquainted with any medicine which has any certain power of altering

this kind of temperament. It seems rational, however, to combine such general remedies as have been known to be serviceable in other strumous diseases with the local treatment already noticed. Hectic symptoms are such as we commonly have to palliate in the cases under consideration. When the stomach can bear bark this medicine should be given, conjoined with the aromatic confection. I have seen so much comfort derived from the prudent administration of opium to patients afflicted with diseased joints that I cannot refrain from strongly praising it, and declaring that the objection made to its employment, on the ground that it increases perspiration, seems to me exceedingly frivolous when I call to mind the great good which this excellent medicine produces in keeping off a debilitating diarrhœa, alleviating pain, and procuring sleep.

Nothing is more serviceable in all cases of diseased joints, than keeping the morbid parts perfectly motionless. Foolish attempts to walk frequently frustrate the most scientific plan of treatment. Some surgeons are in the habit of confining the diseased knee in splints,

and impute a good deal of benefit to this plan. I am very much inclined to think well of the method; but I can say nothing particular in its recommendation from my own personal experience. We see that one constant effect of disease in the knee is to produce a contraction, or permanently bent state of the articulation. This might undoubtedly be prevented by splints, and, by altering the position of the joint, as well as by keeping it completely motionless, some beneficial change might also be made in regard to the malady itself.

Here I shall take the liberty of laying before my readers four original cases of diseased joints, which were materially benefited by maintaining a discharge from blisters or issues.

CASE III.

Hannah Hussey, when eleven years of age, and a month after she had recovered from the small pox, was attacked with pain and swelling of the right knee. Various lotions and plasters were made use of, but without any good effect, the disease still continuing to increase. In the month of July, 1803, two years after the patient first complained, the whole joint had become prodigiously swollen under the inert treatment and even neglectful plan which had hitherto been adopted.

At this time the integuments were hot and tender to the touch; a fluctuation was perceptible in the anterior part of the tumour, and the condyles of the femur communicated a deceitful sensation, when handled, as if they were really very much enlarged. On moving the joint a grating noise could be heard, and considerable pain was experienced under the knee pan, and in the centre of the

articulation. The patient's health was also much impaired.

Leeches were applied to the joint, and the saturnine lotion was continually made use of. The leeches were repeated three times, and at the expiration of a week, the heat, acute pain, and tension had considerably abated. A blister was now put on each side of the joint, and dressed with the savin cerate. Tonic medicines were, at the same time, internally administered.

A copious discharge was in this manner kept up for three months, during which time all the symptoms gradually diminished.

As there was some difficulty in keeping up a sufficient discharge from the blistered surfaces, in consequence of inattention on the part of the patient and her friends, the blisters were now allowed to heal, and issues were made with caustic in their stead. A discharge was continually kept up from these for five months.

At the end of this time the pain in the articulation was entirely removed ; the whole collection of fluid in the capsular ligament

absorbed; and the girl's health perfectly restored.

She was able to walk a considerable distance without much inconvenience, though the joint was still somewhat enlarged.

In this amended state she continued for three months, when her health began to decline again; fluid was accumulating in the joint; and the pain was returning. Blisters and the savin cerate were once more employed, and tonic medicines administered. This plan was unremittingly pursued for three months, when the disease of the joint seemed to be completely stopped. As the knee had a tendency to contract, it was confined in as straight a position as possible by means of a splint. Sufficient attention, however, was not paid to this method, and a degree of contraction took place.

The joint now remains somewhat larger, less flexible, and strong, than the other; but the pain is entirely removed, the morbid affection has ceased, and the event of the case may be deemed a very successful one.

CASE IV.

Elizabeth Goddard, fourteen years of age, applied for surgical assistance on account of pain and enlargement of the ankle-joint. The complaint had existed, in a slighter degree, for three years, and had originated in consequence of an external injury. Various applications had been made use of without benefit.

The articulation was now very much swollen, particularly about the internal maleolus. The patient was equally incapable of using her ankle, and bearing any weight upon it.

As there was no appearance of active inflammation a blister was immediately applied to each side of the joint, and afterwards dressed with the savin cerate. A copious discharge was thus maintained for five months. Very soon after the application of the blisters a material change for the better took place, and when the excoriated surfaces were healed the fullness and pain of the joint had subsi-

ded, and scarcely the smallest degree of enlargement could be perceived. A trivial stiffness and weakness alone remained.

CASE V.

John Talmage, thirty-six years of age, applied for surgical advice four years ago last spring, on account of an enlargement of his left knee. The disorder had existed five weeks, and was attended with a degree of pain and heat in the articulation.

Some purging medicine was prescribed for him, and he was directed to apply linen, wet with the saturnine lotion, to the affected knee. No more was seen of the patient for nine months, during which time he had been under the care of different medical men without obtaining any benefit whatever.

On his second application the tumefaction of the articulation was much increased; the pain, heat, and tension were very considerable; and a sensation was communicated on feeling the condyles of the os femoris, just as if they were actually enlarged.

Leeches and the saturnine lotion were made use of, till the knee became in a more quiet state, and then a copious discharge was kept up on each side of the articulation, with very little intermission for a year and a half. The discharge was obtained, partly by means of blisters and partly by means of caustic issues.

Though this treatment diminished the swelling around the joint, as well as the quantity of fluid in the capsular ligament, yet the pain in the articulation, after having been at first relieved, returned, and continued in so great a degree that the patient could not bear to stand on the leg, nor suffer the slightest motion of the knee. For a long time he was also under the necessity of taking opium at night.

Besides the above remedies, camphorated mercurial ointment was well rubbed into the knee, and mercury was internally exhibited, so as to affect the system. A fair trial was also given to the muriate of lime, which is sometimes serviceable in scrophulous diseases of the bones. This case, however, was prob-

ably not of a scrophulous nature; for it had originated in a man thirty-six years of age, in consequence of external violence, and in a constitution in which there were no vestiges of a scrophulous habit. In the present instance therefore, as might be expected, neither mercury nor the muriate of lime proved of any utility.

In December, 1805, he was admitted into one of the London hospitals, where he remained ten weeks without deriving the least benefit from the various applications which were tried.

Latterly he has declined doing any thing for his complaint. Great pain is still experienced in the affected joint, and some enlargement of the part is still manifest. There is a degree of moveableness in the articulation; but all motion is attended with a grating noise and considerable pain. The leg and thigh are both very much emaciated, and this circumstance, as I have stated in a foregoing chapter, always makes a joint seem more enlarged than is really the case. As his general health does not materially suffer, he

seems negligent of the local disease. He continues to enjoy some share of locomotion, by transmitting the weight of his body to the ground, by means of a strong forked stick, which is made fast to the hip, and supports the leg and foot.

In this case we must allow that the progress of the disease was arrested by the blisters and issues, though they did not accomplish a complete cure. They did not permanently relieve the pain ; but they diminished the thickening of the soft parts around the articulation in a very considerable degree.

CASE VI.

William Paley, aged forty, and a robust man, was seized three years ago with an affection of his right knee. The complaint had been coming on about three weeks before he applied for advice. The joint was now considerably swollen, and affected with severe pain, extending all over the articulation. There was likewise a good deal of fever.

Leeches and the saturnine lotion were applied to the joint, and purgative, febrifuge, and opiate medicines were prescribed. At the expiration of ten days the febrile symptoms had abated; but the state of the joint was scarcely altered, and, as the pain continued to be excessive, emollient fomentations and poultices were used as topical applications. This plan was certainly productive of infinite relief.

A month elapsed before the joint became sufficiently quiet to warrant the topical employment of stimulants. The articulation was greatly enlarged, and handling it created uneasiness; but as the heat and pain were now diminished, I applied a blister to each side of the joint. As soon as the cuticle was removed the excoriated surfaces were dressed two or three times with the savin cerate. This produced so much irritation that the former symptoms returned, and it was necessary to have recourse again to the emollient plan of treatment, till the inflammation, &c. had abated.

The blisters were once more applied; the same consequences ensued, and the same remedies were again adopted.

The next time, when the joint had become free from pain and preternatural heat, a large issue was made with caustic on each side of the part, and kept open by means of beans. The strictest quietude was enjoined, and the Peruvian bark administered.

As the discharge continued, so did the disease gradually subside; and as the patient was sensible of the benefit which he reaped from the mode of treatment, he persevered in it with all that fortitude and attention which could be desired. A continual discharge was kept up for fourteen months, at the end of which time his knee was considerably reduced in size, and he was able to walk and bear upon it with very little inconvenience. However, there is still some enlargement of the joint, and the patient has not so much motion and strength in it as in the other knee.

In this case we clearly see that perpetual blisters cannot always be employed, on account of the excessive irritation which they some-

times produce throughout the joint ; and that, under such circumstances, caustic issues may be advantageously made instead of them. I believe, this is most frequently the case with some kinds of rheumatic white swellings, and very seldom with such as are truly scrophulous ; for these latter are naturally very chronic affections, and bear the stimulating effect of a blistered surface without the production of a general irritation through the diseased joints. But this observation applies only to cases which are not in an inflammatory state, or (in other words), which are unattended with heat of the skin, throbbing pain, &c.

I need scarcely notice that the last case was undoubtedly not of a scrophulous nature : the disease began at too advanced a period of life, and the pain, instead of affecting one particular part of the joint, was general and diffused.

CHAP. V.

Treatment of the White Swelling concluded.

WHILE the patient's constitution continues equal to sustain the irritation of a scrophulous or other inveterate disease of the knee-joint, no humane practitioner would ever think of proposing amputation of the limb, however difficult, or impossible he might hitherto find it to cure the malady, or even retard its progress. Such sudden alterations for the better do sometimes succeed a long duration of intractable disorder in a joint, that no man can pronounce with certainty that every chance of preserving the limb is at an end.

The state of the general health, and not of the local disease, is the only thing that can form a solid reason for the removal of the affected member. When the strength of the system has been almost exhausted by the severe effects of the local malady on the constitution, I see no rational alternative. A long-

er attempt to preserve the limb would only plunge the patient into so feeble a condition, that no mortal effort, no human skill, nor science, could again recal the sad, though consolatory dilemma, of loosing the limb for the sake of preserving life.

What man of common understanding, aware of the severe nature of hectical symptoms, after they have lasted a considerable time, can feel a want of decision in these cases? What reasonable being can suppose that a speedy dissolution will not result from the total loss of appetite, rest, and strength, profuse night sweats, and as profuse purgings, which foil, as Mr. Pott very ably describes, all the efforts of medicine, and bring the patient to the brink of destruction?*

But never let the surgeon undertake the important operation of amputation merely on account of the unpromising aspect of a diseased joint. If, governed by this consideration alone, he should presume to advise the

* Chirurgical Works, vol. iii. Remarks on Amputation, p. 371. Edit. 1783.

use of the knife, he is guilty of the most culpable ignorance. I again repeat (for I think it a subject of the highest consequence), that the debilitated state of the constitution, the impaired state of the health, is the only thing which can ever urge the performance of amputation in cases of white swellings. If the strength is still remaining, though the diseased joint may be immensely enlarged; nay, though it may be surrounded with abscesses; the operation of removing the limb is not indicated; and that man evinces a very mistaken judgment, who recommends, under such circumstances, the employment of the knife. As I have already said, while the constitution shows itself equal to the struggle, it is impossible to prognosticate with certainty that a white swelling, however bad it may be at present, will not have such a termination as shall enable the patient to preserve his limb.

Doctor Jeffray, professor of anatomy and surgery in the college of Glasgow, laid before the public, a short time ago, all the facts which are extant on the subject of the excision of

carious joints, as an operation to supersede the removal of the whole limb.*

The observations which I have to make on this subject are few; but, I hope, they will be to the point.

My sentiment has been already stated with regard to the time when every hope of curing a diseased joint ought to be abandoned. I have stated that the approach of dissolution, in other words, the sunk state of the system, can be the only solid reason for amputation, and that, as long as the patient's strength is not subdued by the irritation of the local disease, humanity dictates the propriety of persevering in an attempt to save the affected limb. Indeed I would reprobate any man who should inculcate the premature practice of a severe operation, as being either defective in professional judgment, or destitute of a proper regard for his fellow-creatures.

* Cases of the Excision of Carious Joints, by H. Parke, Surgeon in the Liverpool Hospital; and P. F. Moreau, M. D. de l'ecole de Paris: with Observations by J. Jeffray. 1806.

Will a patient, greatly reduced by hectic symptoms, be able to recover from so bold and bloody an operation as the dissection of the whole of the knee-joint out of the limb? If some few should escape with life and limb preserved, would the bulk of persons, treated in this manner, have the same good fortune?

I cannot admit that the extirpation of the whole of so large an articulation as the knee, can be compared with the operation of amputation, in point of simplicity and safety. However, it is not on the difficulty of practising the former that I would found my objections; for I believe that any man, possessing a tolerable knowledge of the anatomy of the leg, might contrive to achieve the business.

The grounds on which I shall at present withhold my approbation from the attempt to cut out large joints are the following.

1. The great length of time which the healing of the wound requires. Whoever peruses the case of Hector M'Caghen (P. 18.) will find that the operation was performed on the 2d of July, 1781, and that it was Februa-

ry 28th of the following year before all the subsequent abscesses and sores were perfectly healed. This space of time is very nearly eight months! Mr. Parke describes the patient as a strong robust sailor; and gives us no further particulars concerning the state of his constitution, at the time of the operation, than that his health was declining. I entertain little doubt that if the excision of the knee had been performed in that state of the health in which amputation becomes truly indispensable, this man would not have survived the operation. The only other case in which Mr. Parke extirpated the knee ended fatally. In the instance related by Moreau (P. 129.) there seemed indeed to be considerable debility. This patient escaped the first dangers consequent to so severe an operation; and, *after three months confinement*, the patient was in such a state that M. Moreau expected that he would be *able to walk upon crutches in another month, or six weeks!* The young man in the mean time was attacked with an epedemic dysentery, which carried him off.

2. Even supposing the excision of the knee-joint to be followed with all possible success, is the advantage of having a mutilated, shortened, stiff limb, in lieu of an artificial leg, sufficiently great to induce any man to submit to an operation infinitely more dangerous in the result than amputation ? I think not.

I should be sorry to appear prejudiced against any branch of practice ; but particularly so when the method is, in some degree, supported on the basis of fact, and the recommendations of very respectable characters. I profess myself to be a sincere admirer, and a warm, though feeble, patron of all rational innovations and improvements, and it would be with heart-felt pleasure that I should foresee any likelihood of the present proposal becoming really beneficial to mankind. The esteem in which I hold my profession will always render me anxious for its cultivation. But the very same principles which would urge me to extol certain introductions into practice, will always force me to condemn others, of which I cannot form so propitious an opinion.

It seems to me not unlikely that such cases as are related by Mr. Parke and M. Moreau may even occur again, and be laid before the public, with circumstances, forming a stronger recommendation of the practice. But I am afraid that the events of such examples will always be considered rather as escapes than scientific cures; as instances rather to be remembered than imitated.

I shall say nothing concerning the extirpation of other articulations, except that the operation in the elbow would not be so formidable as in the knee. When the disease is in this situation, however, amputation is also less severe than when performed on the thigh.

These are all the remarks which I presume to offer at present on the subject of white swellings of the knee.

PART III.

DISEASE OF THE HIP-JOINT.

CHAP. I.

Description of the Complaint.

IT is far from my intention in the subsequent columns to take a view of the whole of this interesting subject. If I succeed in tracing the characteristic features of the present disease, explaining the most efficacious plan of treating it, and laying before my readers a few interesting cases, I shall feel that my undertaking, however incomplete, will not be altogether destitute either of useful or original matter. In performing this task I

shall aim at adopting the same simplicity of style, which it has been my wish to diffuse throughout the preceding pages. To such readers as may admire a more ornamented and florid production I can only say with Celsus, "*morbi non eloquentiâ sed remediis curantur.*" Præf. lib. i.

The first proposition with which I shall commence is that the complaint commonly called the "disease of the hip-joint," is very analogous in its nature to the white swelling of other articulations. Like the latter malady it probably has its varieties, some of which are undoubtedly connected with scrophula, while others cannot be suspected of having any concern with a strumous habit. I believe that in a given number of cases there are more diseased hips, quite independent of scrophula, than there are white swellings of other joints. We have noticed, in the second part of this dissertation, that young subjects are most particularly subject to scrophulous diseases, and of course to that affection of the joints which is commonly considered to

be connected with a strumous constitution. It has been stated that if a person live to the age of five-and-twenty, perfectly free from all scrophulous symptoms, the hazard of his ever becoming afterwards afflicted with a true scrophulous complaint, may be regarded as almost past. Hence all morbid affections of the joints, first occurring after this period of life, and under such circumstances, I think, may be justly deemed to have no connexion with scrophula.

Disease of the hip-joint is most commonly met with in children under the age of fourteen; in this respect it is very analogous to the true white swelling. But no age is exempt from the malady; so that though children form a large proportion of those subjects who are afflicted, yet the number of adults, and even of old persons, is much more considerable in a given number of these cases than we find to occur in the same number of cases in which the knee is diseased. This is my reason for thinking that there are more hip cases unconnected with scrophula, than

there are examples of white swellings being similarly circumstanced. Of course I apply the observation only to a definite number of cases of each disease; for the much more frequent occurrence of morbid knees, ankles, wrists, and elbows, than of diseased hips, would destroy the accuracy of the remark, if taken in a general sense.

The approach of the hip disease is far more insidious than that of a white swelling. The latter is generally preceded by severe pains, while the only forerunner of the former is frequently a slight weakness and limping of the affected limb. This state is too often overlooked, and when noticed by men little versed in the profession is commonly treated on principles the most repugnant to surgical science. Embrocations are generally prescribed, without any injunction to keep the limb in a quiet state. The application is also often made to the knee, or other part of the extremity; for as there is frequently an uneasiness about that joint, when the hip is affected, and as no pain whatever is sometimes

mentioned, as occurring in the latter situation, till a more advanced period of the malady, it is not uncommon to see careless practitioners directing their remedies to some situation very different from that of the disease. While such applications as stimulating liniments are directed, the shrewd observer may remark that the error is a fortunate one, and that it is better to apply nothing than what is of an irritating nature. I coincide most sincerely with this sentiment; but how shall we excuse such supine neglect, such guilty ignorance, when we are informed that this incipient period of the complaint is the only one in which a favourable prognosis might be made! for mere rest and repeated topical bleeding will now have more effect, in the course of a fortnight, than large painful issues will afterwards generally have in the long space of a twelvemonth.

The first diagnostic symptoms of disease in the hip joint, if we merely look for them in the situation of that articulation, are not particularly conspicuous. It is true that a

fixed pain behind the trochanter major, in some instances, very soon excites the attention of the most careless surgeon to the seat of the morbid affection. But mere pain in a joint, quite free from visible enlargement and external change of colour, is generally disregarded as a complaint of no importance in young subjects, and as a mere rheumatic or gouty affection in adults. Even when the pain begins to be severe, it is commonly not confined to the seat of the disease; but shoots downward in the course of the vastus externus muscle to the knee, and along the outer part of the fibula to the malleolus externus. I have often found that patients refer most of their painful sensations to the groin. In short, there is no particular symptom, occurring in the precise situation of the morbid affection, so as to form an infallible pathognomonic mark of its existence. But still the characters of the disease are very strong, when examined by a surgeon who has paid attention to the subject.

Almost as early as the least limping can

be perceived, some diminution in the circumference of the leg and thigh has actually taken place, as may be easily found by an accurate measurement.

The hip joint is deeply situated, so that its accidents and diseases cannot be examined as readily as those of many other articulations. The generality of surgeons little think that the proper place for pressing on the hip joint, with a view of ascertaining the presence of disease, is a little on the outside of the femoral artery, soon after it has descended below the brim of the pelvis. At this spot the surgeon may apply pressure to the front of this large articulation, and if it be diseased considerable pain will be the consequence of the experiment.

The limping gait denotes that something is wrong in the limb; and if this symptom cannot be attributed to some affection of the vertebræ, or some recent accident; also if it be conjoined with the above-mentioned emaciation of the affected member, and exasperation of pain on pressing the front of the

acetabulum ; then the evidence of disease in the hip becomes more and more convincing. The weakness of the lower extremities from diseased vertebræ, I believe, always affects both limbs at once, and is unattended with pain about the knee ; circumstances completely discriminating this complaint from the feebleness of the limb arising from a disorder in the hip joint.

Another remarkable symptom is the elongation of the limb in the incipient stage of the hip disease. Mr. Ford* has very ably pointed out the right method of discovering the circumstance, by comparing the condyles of the os femoris, the patella, the trochanter major, and the malleolus internus of the diseased limb, with the same parts of the sound one.

I think that the great elongation of the lower extremity, in consequence of disease in the hip, has never been accurately explained. It is a fact that the limb not unfrequent-

* Observations on the Disease of the Hip Joint, &c. p. 12.

ly becomes three or four inches longer than the sound one. Dr. Falconer* of Bath says that, " if the cartilage or periosteum be thickened in the superior parts of the head of the os femoris or acetabulum, it will thrust the head of the bone downwards and lengthen the limb." The error of this explanation is easily exposed by stating, that the diameter of the acetabulum itself is not so great as the lengthening of the limb, and that it is almost completely occupied by the head of the thigh bone, so that the degree of perpendicular motion of the femur must, as long as the acetabulum continues entire, be very inconsiderable. No relaxation of ligaments, if ever there were such a state, could account for the fact ; for in the most healthy condition of the hip joint no ligaments, (if we except that which completes the bony deficiency at the lower and inner part of the acetabulum), are concerned in preventing the os femoris from descending downward. The ligamentum teres resists the dislocation of

* Dissertation on Ischias, &c. p. 17.

the head of the bone upward, but not downward. The orbicular ligament is naturally lax, and like all other capsules of the joints, must rather be considered as a bag for containing the synovia than as a means of increasing the strength of the articulation. I am very much disposed to believe that, in the very early stage of the hip disease, the cartilage and ligament completing the lower and inner part of the acetabulum are destroyed.* If this be not the case I acknowledge myself totally incapable of conceiving how the limb can become lengthened to the extent which it frequently does, in cases of diseased hip joints. The bone is certainly not pushed out of the cotyloid cavity in a lateral direction, for if it were so, the muscles would

* Mr. Ford has given an account of the morbid appearances found in a recent case, and attended with elongation of the limb. It does not appear that in this instance there was a destruction of the ligament and cartilage completing the lower and front part of the acetabulum. How the limb could be elongated while the head of the bone was in its socket, I am at a loss to conjecture.

draw the bone upward and shorten the limb, as we find actually occurs as soon as the upper and posterior part of the acetabulum and the ligamentum teres are so destroyed that they make no resistance to this kind of dislocation. Mr. Ford is entitled to the merit of having first pointed out to surgeons, "the "alteration with respect to the natural ful- "ness and convexity of the nates, that part "appearing flattened which is usually most "prominent." The glutæus magnus becomes emaciated, and its edge no longer forms so bold a line as it naturally does at the upper and back part of the thigh, in the sound state of the limb. This is one very strong feature of the early state of the disease, and it has been accurately represented in an engraving in Mr. Ford's work.

Though there may be more pain about the knee than the hip, at some periods of the malady in its insipient state, yet the former joint may be bent and extended without any increase of uneasiness; but the thigh bone cannot be moved without augmenting the sufferings of the afflicted.

Patients with diseased hips soon get into the habit of bearing the weight of the body chiefly on the other extremity, so that they bend the thigh of the affected side forward in order to touch the ground only partially with the foot. It ought also to be noticed that this is found at all times to be the most easy position of the limb, and every attempt to extend it proves productive of pain.

Such is the first stage of the disease in its ordinary form, in which we generally find the health little disturbed.

The malady is usually not very painful to the touch, except the pressure be applied to the front of the joint, the part which is undoubtedly the most superficial. But there are instances, and I have frequently been an eye-witness of such, in which all the soft parts surrounding the joint are tense, exceedingly painful when handled, and in which the integuments are even tinged with a light pink blush. I have generally observed the complaint to assume this appearance in patients who have been guilty of imprudent

exercise, and in the children of the poor who cannot attend to the disorders of their offspring in a proper manner.

We come now to the second stage of the disease, or that which is attended with suppuration.

The symptoms which are the forerunners of the formation of the pus are different in different cases. This variety depends upon the presence of acute, or only chronic inflammation. When the former occurs, the parts surrounding the joint become tense and extremely painful, the skin is even reddish, and the patient experiences an attack of sympathetic inflammatory fever. As the local pain abates rigors take place, a swelling forms in the vicinity of the joint, and very soon points.

When the abscess is the consequence of that languid kind of inflammation which usually occasions scrophulous collections of matter, there is not so remarkable an increase of pain in the articulation previously to the occurrence of suppuration. Mr. Phillot, surgeon to the Bath General Hospital, says that

startings and catchings during sleep are, in this stage of the disease, among the most certain signs of the formation of matter.* When the pus forms in this chronic manner, it does not make its way to the surface of the body so quickly as when the abscess has been the immediate result of active inflammation attacking the morbid joint. A large fluctuating tumour forms, but does not immediately point. The patient suffers greater uneasiness in the part; yet his sensations do not amount to that acute description of tenderness which affects, in the foregoing instance, not only the deep, but also the most superficial parts around the articulation.

At length the limb becomes shortened, and this circumstance, when the retraction is very considerable, arises from nothing less than an actual dislocation of the head of the thigh bone, in consequence of the destruction of the cartilages, ligaments, and articular cavi-

* See a note, p. 9, of Falconer's Dissertation on the Ischias.

ty. The shortening of the limb sometimes happens before suppuration; for the most part, I believe, after it. There are instances in which the head of the bone is dislocated, and anchylosis follows without any occurrence of abscesses.

Sometimes patients are seriously dejected by hectic symptoms before matter forms. In the suppurative stage of the malady these effects on the constitution always become worse. The patient loses his appetite, cannot sleep at night, has a small frequent pulse, colliquative sweats, and often a very obstinate and debilitating diarrhœa.

The openings through which such abscesses as I have described are discharged, continue, in most instances, to emit an unhealthy kind of matter for a long time after their first formation. They become, in fact, the terminations of sinuses leading to the morbid joint.

When disease in the hip joint follows external violence, the advances of the malady are somewhat different from the above de-

scription. The symptoms which precede the affection are a violent pain at the instant of the accident, and an inability to move the limb. However, this privation of the faculty of moving the member is not so complete as when the neck of the os femoris is fractured; because the superior part of this bone, and the articular cavity, which have suffered no alteration, form a sufficient fulcrum to enable the muscle to act on the thigh. The injury is very soon followed by more or less swelling, pain, and fever. No diminution in the length of the limb can be perceived, nor is the position of the knee and foot at all altered. But afterwards the thigh becomes gradually shorter, and the foot turned inward. The patient cannot move without experiencing the most acute pain. An abscess commonly forms at the upper and middle part of the thigh, and, if no amendment take place, hectic disorders sooner or later occasion the patient's dissolution.

To illustrate the progress of the disease when it is the consequence of external vio-

lence, and to point out the ravages which it produces in the parts affected, I have inserted the following interesting case, which is the abstract of one related by M. Sabatier in the Mem. de l'Acad. de Chirurgie.

CASE VII.

A boy, about fourteen years of age, had for two years a considerable abscess at the anterior and superior part of the right thigh. The extremity on this side was about three finger-breadths shorter than the other, and the toes were turned inward. An œdematous swelling occupied the lumbar region and the situation of the glutei muscles, and extended down the thigh even to the knee. There was a good deal of pain all round the abscess, and particularly in the groin, where the glands were swollen and hard.

The boy had fallen on his knee on the 15th of June, and afterwards experienced such pain, shooting from that joint to the top of the thigh, that he was obliged to remain in bed

four days. The pains being abated, he got up and attempted to take his usual exercise again ; but he found that he could not support himself, and was necessitated to make use of crutches until the 3d of January following. In the mean time the inguinal glands became considerably enlarged. This symptom was somewhat relieved by emollient and resolvent applications. The pain, however, continued to increase daily ; the difficulty of walking, even with crutches, became greater and greater ; and the thigh began to be shorter than the other.

An empirical practitioner, who was consulted, pronounced that the thigh was dislocated, and that it was proper to reduce it. Such attempts as he proposed with this view were put in execution. Some time afterwards he desired the patient to walk ; but he was quite incapable of walking without crutches, and without greater pain than ever.

At length the glands in the groin swelled again, and the above mentioned abscess began to manifest itself about the middle of February.

The contents of this abscess were afterwards let out through a small puncture, by a regular surgeon. The quality of the matter was fetid, and the quantity three pints. The immediate consequences of the operation were successful beyond expectation. The tumefaction of the thigh decreased; the inguinal glands became smaller; the pains were not so acute as before; and almost all febrile disturbance disappeared. Such symptoms, however, soon recurred with greater vehemence than ever, and an abscess formed in the groin and burst spontaneously. The thigh became shorter every day. The leg and foot were attacked with an œdematous erysipelas, and the patient at length died five months and a half after the operation.

On dissection several collections of pus were discovered, some among the glutei muscles, and others on the external surface of the os ilium, and in the situation of the cotyloid cavity. The muscles on the anterior and superior part of the thigh were covered with a large quantity of matter; similar to what was dis-

charged from the principal abscess. The latter collection extended even into the hip-joint. The femur was drawn upward above four finger-breadths on the external surface of the os ilium. The cartilage which covers the head of the former bone was entirely destroyed; and this part of the bone was altered, and marked with deep excavations in consequence of caries. In this case the acetabulum was totally destroyed, so that the femur had been luxated, because the brim of the articular cavity having been effaced, the head of the bone was obliged to obey the action of the muscles. All the outer surface of the os ilium, on which the head of the thigh bone had glided, was affected with a kind of carious distemper, and fragments of it easily crumbled off.

No elongation of the limb is recorded in this case; but, in all probability, this circumstance occurred in the early stage of the disease, before a regular surgeon was consulted.

But to return to the description of the interesting malady now under consideration. It is observed by Dr. Falconer that the tuberosity of the ischium is, in many instances, lower on the affected side than on the other. To confirm this circumstance he mentions the pelvis of a person who died in the Bath General Hospital. In this specimen, which was preserved there many years, the fact was demonstrable. If this alteration were evident in the bones of the skeleton, the circumstance must arise from a permanent distortion of the pelvis, and cannot be the mere temporary effect of any particular posture of the patient during life. As I have never seen this appearance, either in the dead or living subject, I shall not dwell upon it. The thing is curious and merits attention.

With respect to the morbid anatomy of the disease in its incipient state, little is known. Two dissections related by Mr. Ford are, I believe, the only ones throwing light on this point. In one there was a tea-spoonful of matter in the cavity of the hip-joint. The

head of the thigh bone was a little inflamed, the capsular ligament a little thickened, and the ligamentum teres united in its natural way with the acetabulum. The cartilage lining the cotyloid cavity was eroded in one place with a small aperture, through which a probe might be passed underneath the cartilage, into the internal surface of the os pubis, on one side, and, on the other, into the os ischii ; the opposite or external part of the os innominatum showing more appearance of disease than the cotyloid cavity. In the other case the disease was more advanced. These examples are important, inasmuch as they prove that the hip complaint primarily affects the cartilages, ligaments, and bones, and not the surrounding soft parts, as De Haen and some others would lead one to believe. As the disorder advances the portions of the os ischium, os ilium, and os pubis, forming the acetabulum, together with the investing cartilage and synovial gland, are destroyed. The cartilage covering the head of the os femoris, the ligamentum teres, and capsule of the joint,

suffer the same fate; and caries frequently affects not only the adjacent parts of the ossa innominata, but also the head and neck of the femur. I believe, however, that the bones of the pelvis always suffer more than the thigh bone. The malady may even have made such ravages as to have completely destroyed the brim of the acetabulum, and dislocated the head of the os femoris; and yet the substance of the latter part may be free from all distemper. The following fact illustrates the veracity of this remark.

CASE VIII.

A subject was brought to the dissecting room at St. Bartholomew's Hospital, and it was noticed by the gentlemen present that there was great retraction of one of the lower extremities, owing to some morbid affection about the hip-joint. On cutting into the parts a very large abscess was found on the dorsum of the ilium, and, in the midst of the mat-

ter, the head of the thigh bone was found lodged on the ilium. The cotyloid cavity was completely destroyed by disease, together with all the ligaments and cartilages. The head of the femur was quite perfect, and free from the slightest mark of caries, though its cartilage was slightly eroded in a few places.

The preparation showing this fact is preserved in the anatomical museum of the above hospital.

The particulars of the case before death were unknown. As I believe no author has recorded a similar instance, and as the fact, that the ossa innominata are generally more affected than the femur, is very important, I thought the insertion of this interesting and striking example would be better than any long reasoning on the matter.*

* Mr. Ford says, "In every case of disease of the hip joint, which has terminated fatally, I have remarked that the os innominatum has been affected by the caries in a more extensive degree than the thigh bone itself." P. 107.

The knowledge of the circumstance is extremely important, because it displays the absurdity of attempting amputation in these cases.

Sometimes, however, the head and neck of the thigh are completely destroyed by the same morbid process, which annihilates the acetabulum. There is a specimen of this fact in the above mentioned museum, and Mr. Ford has given, in his valuable work, an engraving illustrative of such a case.

I have only to say on the subject of the remote causes of the hip disease, that they are very imperfectly known. External violence is undoubtedly one, and the testimony of numerous respectable writers confirms that lying down on the damp ground in summer time, and indeed all kind of exposure to damp and cold, are frequently conducive to the origin of the malady. For this reason the lower orders of society are rather more subject to the affliction than the higher. The particularities, however, in the affected joint, or in the constitution, which cause the disease to take place in some persons, and not in others, though similarly circumstanced in life, are, perhaps, beyond the reach of human investigation. A scrophulous habit is certainly one

predisposing circumstance ; but the disease often takes place without any suspicion of scrophula, and without any apparent cause whatever.

CHAP. II.

Treatment of the Disease of the Hip Joint.

BY referring to the writings of Hippocrates, Celsus, Cælius Aurelianus, &c. we shall discover that our forefathers are indisputably entitled to the honour of having employed every efficacious plan, even now known to the moderns, of treating the disorder of the hip joint. Forming an eschar, and keeping the sore open; topical bleedings; fomentations; cupping; &c. were all practised by the ancients. The Bath water they certainly did not use; and if it have such immense effect as Dr. Falconer has represented, I must candidly own that past ages have been very unfortunate in not having sooner found out the utility of this remedy in the incipient state of the hip disease. Dr. Falconer has given a table of the state of the patients at their discharge,

who were admitted into the Bath Hospital for hip cases, from May 1, 1785, to April 7, 1801. The number amounts to five hundred and fifty-six, of which one hundred and three were cured, one hundred and sixty-eight were much better, one hundred and eleven were better, thirty-three were no better, one hundred and twenty-two were improper objects, the disease being too far advanced, thirteen were discharged for irregularity, and six dead. Now from the numerous cases of this disease which I have seen I have not the smallest hesitation in asserting that the success at Bath far exceeds any thing ever met with in this metropolis. It is to be observed, however, that Drs. Charlton, Oliver, Falconer, and other advocates for the Bath water, agree that its utility as an external application, in these cases, is limited to that incipient state of the disease, unaccompanied either with hectic fever or suppuration; and that as soon as one, or both the latter circumstances occur, the application then becomes injurious, and ill deserves the name of a remedy. Patients, in order to derive

benefit from the water, are placed in a warm bath for fifteen to twenty-five minutes, two or three times a week.

When we consider the nature of the disease of the hip-joint, and reflect on its deep situation ; when we recal to mind the distempered state soon produced in the cartilages, ligaments, and bones of the articulation ; we can hardly believe that the mere external use of any remedy, like Bath water, can have such powerful influence over the disease as we might be led to suppose from a perusal of Dr. Falconer's pamphlet. For my own part I regard the subject in a different point of view. I doubt whether all the numerous instances adduced in support of the practice, were really and truly cases of the hip disease. Many of them might have been merely rheumatic affections. My suspicions originate in consequence of Dr. Falconer's admission, that cases attended with hectic fever or suppuration are never benefited by the same treatment ; in consequence of the facility of mistaking other maladies for incipient hip cases ; and in consequence of the

table, delivered by Dr. Falconer, being taken from a register of the hospital; a thing very likely to be drawn up in a careless manner. Such a statement was probably not formed by a man, whose talents and discrimination were equal to those of the respectable practitioner who is the author of the pamphlet on this subject. I am entirely of opinion with Mr. Ford, that any kind of warm bathing would have been productive of the same benefit. I cannot say that it has occurred to me to see much of the practice of placing patients, afflicted with the hip disease, in the warm bath; but I have repeatedly seen fomentations employed. The latter applications undoubtedly relieve pain; and in early cases are very proper to be tried in conjunction with topical bleeding. I can, however, impute to them no efficacy in producing any permanent amendment in the disease. Topical bleeding with leeches, and cupping the circumference of the affected joint, provided the case is attended with symptoms denoting inflammation of the joint, are the measures which I shall confi-

dently recommend. The fomentations may be applied two or three times a day for half an hour; but, as great utility does, in my opinion, originate from cold saturnine applications to the part, I recommend them to be used during the remainder of the day.

This plan of treatment, I think, ought never to be employed, unless there are manifest marks of active inflammation in the joint; for, when no such state exists, the method can only be considered as preventing the employment of a more beneficial plan, and therefore is liable to severe reprobation.

As far as morbid anatomy can inform us the hip disease consists in the same alteration of the bones, ligaments, and cartilages, as we find exists in the generality of white swellings. As far as my experience extends both diseases ought to be treated on the same principles. But though I have found blisters most efficacious in checking disease in the knee, caustic issues have appeared to me to excel in hip cases. The benefits resulting from both applications are to be imputed partly to

the counter-irritation, and partly to the discharge which they occasion.

CASE IX.

Showing the Efficacy of a Caustic Issue in an Example of the Hip Disease in a recent State.

G. H., a boy eleven years of age, without any assignable cause began to experience a weakness and lameness in the left lower extremity, and his complaint was attended with severe pain at the outer part of the knee. At length he became quite incapable of taking his usual exercise, lost his appetite, and became pale and wan in the countenance. When surgical advice was first requested the disease had existed about two months ; there was a good deal of pain in the groin ; the inguinal glands were even somewhat enlarged ; the glutei muscles did not seem so prominent as in the natural state ; and the whole limb was palpably more emaciated than the other. The

knee joint could be bent and extended without causing the least uneasiness; but the thigh bone could not be moved without exciting severe pain.

Sept. 19th, 1805. An issue about as large as a half-crown was made in the hollow just behind the trochanter major. About eight days afterwards the slough was detached, and as many beans as would conveniently lie in the cavity of the sore were placed there.

The lad began to be materially better at the end of the following month; he could then move the joint without pain, and there were no sensations of nervous irritation shooting down the extremity.

About the middle of November he was able to walk tolerably well without crutches. The issue was kept open for six months, at the end of which time the emaciation of the limb had quite disappeared, and there was almost as much strength in this member as in the one which had not been affected; in short, the lad found himself so well that his friends allowed the issue to be healed, and the boy to

go to sea; a life for which he had a strong inclination. No medicines were administered during the whole of the treatment.

CASE X.

Terminating in Dislocation of the Os Femoris; the Disease stopped; and the Patient recovered.

Mr. W. S. H—, a gentleman twenty-eight years of age, was seized, whilst walking on the 13th of April, 1803, with so violent a pain in the groin that he reached home with difficulty.

In the preceding October he had a swelling of the inguinal glands, unconnected with any venereal causes. This complaint ended in an abscess, which burst, and the aperture had closed shortly before the present attack A few years before he had a similar swelling in the axilla. The pain in the hip continued so

violent as to confine him to bed. The limb was much lengthened at this period. Leeches, fomentations, and poultices, had been employed at first, and an issue afterwards made behind the trochanter.

When Mr. —— was consulted, pressure on the trochanter gave great pain. The patient kept his bed. The issue was allowed to heal. Leeches were repeatedly applied to the front of the joint. When moderate pressure could be borne without much inconvenience, a large blister was placed on the front of the hip, and dressed with cerat. sabin. ; but so much pain and irritation ensued that the excoriated part was allowed to heal.

Soon afterwards the patient was attacked with violent pain in the joint, and spasm of the muscles, during which state the slightest motion could not be endured. An abscess formed, and burst in front of the trochanter. The patient experienced afterwards some respite ; but the fits of pain and spasm recurred with incre sed violence, and when they ceased, (about the middle of August) it was man-

ifest that the limb had become dislocated; for it was three inches shorter than the opposite one. The patient now become easy. A large issue was made behind the trochanter, and it discharged copiously. The gentleman completely regained his health and spirits. The dislocation of the bone occasioned a great swelling of the hip, and there were a strongly marked depression and vacancy in the groin. In October the limb was only two inches shorter than the opposite one. He can walk tolerably well with crutches; but is not allowed to bear any weight on the limb. In November he went into the country, and returned to town the following June. His health had been constantly good, and the limb free from complaints, the issue continuing open. He has never attempted to move the affected joint, nor to walk without crutches.

CASE XI.

Terminating in the Dislocation of the Os Femoris, and, probably, Anchylosis.

M. H—, aged fourteen, was admitted into St. Bartholomew's Hospital, afflicted with a disease in the hip joint. The case had advanced to a suppurative stage before any issue was made. An eschar about as large as a half-crown was at last formed, and the issue was dressed with beans. Some amendment took place soon after, and the matter beneath the skin was certainly less in quantity than it was at first. The girl's health, which was at first in a very bad state, was also improved. Symptoms of active inflammation unfortunately came on; the abscess became very large, and the surgeon felt himself obliged to puncture it in order to procure some degree of relief. The patient continued in the hospital near a year, sometimes better, some-

times worse. The limb, some time before she was discharged, had become three or four inches shorter than the opposite one. The toes turned inward, and the joint was quite motionless. The sinuses leading to the joint healed, and the girl regained her health. She will always have, however, a stiff joint. The limb is now not quite so short as it used to be, and some hopes are entertained that she will be able to walk without crutches, by having a high-heeled shoe.

When much retraction of the limb succeeds disease in the hip we may be sure that either the neck of the thigh bone is destroyed, and the main portion of the bone drawn upwards, while its head remains in the acetabulum, if it be not also entirely annihilated by the morbid affection ; or that the head of the bone is dislocated in consequence of the destruction of the brim of the acetabulum and articular ligaments. If a case were to occur in which the limb was considerably shortened, and the toes turned outward, I should conclude that the head of the os femoris was

separated from the rest of the bone, and that the muscles had rotated the limb outward. But when the toes are turned inward, as all the great muscles of the thigh have a propensity to twist the os femoris outward, we may conclude that this position of the limb is mechanically prevented from taking place, by the head of the thigh bone being situated backward on the dorsum of the ilium.

CASE XII.

Showing a curious Plan of Treatment adopted in a Case of diseased Hip, and followed by Effects which few would expect.

A very respectable gentleman, residing in the west of England, had a disease of the hip joint. Suppuration took place in the part affected, and the matter was discharged by spontaneous external openings. Very extensive sinuses remained, which discharged

largely. His health of course became materially impaired. Two respectable practitioners, a physician and surgeon, attended the gentleman. After the patient had been under their care a considerable time, things still remaining in nearly the same state, another medical man was called in to a consultation. The latter boldly undertook to effect a cure. He injected the sinuses with oil of turpentine. Healthy inflammation was produced, without any considerable constitutional disturbance. The sinuses closed, and the joint anchylosed. The patient is now well, having only a stiff joint.

The gentleman who favoured me with this interesting article, is a very respectable surgeon, and a man endowed with talents far above those of the ordinary stamp. He very ingeniously states that the stimulus of turpentine is of a very peculiar nature : when applied to the raw surface of a burn or scald it gives no pain, and the surface of a chronic abscess cannot be in a more irritable state.

I make no comment on the case ; but the fact seems to me highly deserving of a place in the records of surgery.

As I have not taken any notice of diseased vertebræ in the present dissertation, and it is an affection so very analogous to disorders of the knee and hip, already treated of, I think it may be proper to conclude these observations with a case which I have lately attended, and indeed visit now whenever occasion requires my presence.

CASE XIII.

Showing the Efficacy of Issues in Cases of diseased Vertebræ.

Miss E——, a little girl, ten years of age, living in Prince's-Street, Soho, was brought to my house for advice respecting a weakness of the lower limbs. I begged to examine the

back, and found that three or four of the spinous processes of the middle dorsal vertebræ projected in a very preternatural degree. The child was losing its health very fast, and appeared to be very weak. Its appetite was impaired, and it could not sleep at night. Very severe affections of the stomach, resembling heartburn, also frequently occurred, but a little peppermint water regularly relieved this complaint.

I formed two issues with caustic (the kali purum) on each side of the projection of the spine, making the eschars three inches long and half an inch broad. This was done on the 3d of June, 1805. I was much surprised on paying my next visit to find that all the child's constitutional complaints had taken a very favourable turn. The friends, who are very reputable people in business, informed me that a few hours after the eschars had been made the child became more full of spirit, ate better, and looked better than it had done for many months before. In the course of a week, even before the sloughs

came away, the child could walk without experiencing half the weakness it did previously. This is one of the most convincing cases, which have ever occurred to me, that issues produce their good effects by counter-irritation, as well as by the discharge which they occasion. In this instance most surprising amendment took place before the eschars came away, or a drop of pus had been secreted.

The little girl has now had a discharge kept up from the part for nearly six months; has recovered her health; walks as well as she ever did; and may, in every respect, be considered as cured. About two months ago I allowed one of the issues to be healed.*

Whenever I meditate on the very great benefit which I have seen derived from caus-

* A few weeks after both issues had been healed the child's mother thought there was a degree of weakness returning in the legs. This apprehension of a relapse has, however, now quite subsided; for a short residence at Margate, which I recommended, has made the limbs completely recover their proper strength.

tic issues in cases of disease of the vertebræ, I always feel how much we ought to honour the memory of the late Mr. Pott, through whose transcendent abilities this and many branches of surgery were brought into a very improved state.

THE END.

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